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SOIL CONSERVATION

OFFICIAL ORGAN OF THE SOIL  
CONSERVATION SERVICE

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VOLUME XIX



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Index

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SECRETARY OF AGRICULTURE

ROBERT M. SALTER  
CHIEF, SOIL CONSERVATION SERVICE

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WELLINGTON BRINK  
Editor

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**HOW TO PLAN AIR TOURS.**—A new booklet, "Planning Soil Conservation Air Tours," has been issued by the State Soil Conservation Committee of Michigan, East Lansing. Beautifully printed and organized, it gives exactly the concise information needed by soil conservation districts which are contemplating a soil conservation air tour as an educational method to acquaint people with land use problems and practices. It shows how to proceed with arrangements for plane inspections, makes suggestions as to preparations on the ground, offers a model committee setup, and so on. The booklet is illustrated by half-tones, and includes a sample air tour map for passengers.

Air tours are getting to be an old story in Michigan, where they have been popular and useful in explaining soil and water conservation practices. Groups that have worked together on such tours include the Michigan Department of Aeronautics, Civil Aeronautics Administration, Michigan Department of Conservation, Michigan Association of Soil Conservation Districts, Michigan Department of Agriculture, Michigan Flying Farmers, Michigan State College Cooperative Extension Service, State Soil Conservation Committee, and the Soil Conservation Service.



**FRONT COVER.**—This photograph by Gordon S. Smith was made on the Christ Neff farm in famed Lancaster County, Pa. It was taken one year ago at the time tobacco was being harvested, the crop being on the contour, of course. Left to right: W. Martin Muth, work unit conservationist; Richard Neff, son of owner; and Howard Siglin, vocational teacher. The leaf was of very high quality.

# Water Storage Was Good Business

*A single dam, constructed as a part of a conservation plan,  
brings remarkable results to California farm.*

By **HERB BODDY**

**I**T USED to be that Porter T. Peabody would get a scant ton of cereal hay per acre from one 15-acre dry land field. Now, however, with water from his new dam, he's getting five times as much good forage from the same acreage.

Peabody's farm is near Gilroy, in the Loma Prieta (Calif.) Soil Conservation District. His neighbors know him as a dollar-wise chap, who is not addicted to fads.

---

Note.—The author is in the current information division, Soil Conservation Service, Portland, Oreg.

Born and raised on the home ranch, Peabody knows the ups and downs of farming through crop years good and bad. He early learned to have faith in the wisdom of good land use. But he also learned that conservation farming requires hard work, year after year.

He says he couldn't get along without the 81 acre-foot water-storage dam he built in the canyon above his ranch house. But for a quarter century or more it was only a dream.

The new dam is why his new pasture is doing so well.



**This pond has turned dry lands into good producers of forage.**





**Peabody's new pasture land never produced so much good feed as this year.**



**Part of Peabody's new pasture with sprinklers on. Technician Gene Thomas and Peabody like its looks.**

For years Peabody raised fruits, nuts, and livestock with little more than seasonal rains. Cereal grain planting never produced much hay and grazing.

Peabody's search for more feed for his beef cattle and sheep led in 1950 to his sitting down with technician Gene Thomas to talk about dams. They selected a canyon site which was a natural drainage for runoff from the surrounding 460-acre watershed.

By mid-summer—less than a month after work on the fill started—the dam was ready. It measured 60 feet high and 240 feet across at the crest. The average depth of the pond was 36 feet. Today this pond irrigates some 15 acres of pasture, with about 30 acre-feet of water carry-over in dry years.

During the springs of '51 and '52, Peabody seeded 15 acres to the following permanent pasture mixture: perennial ryegrass, 3 pounds; tall fescue, 4 pounds; Ladino clover, 3 pounds; birdsfoot trefoil, 2 pounds, and orchardgrass, 1 pound. To get

a good seedbed, he plowed, disced and used a roller-type seeder. He started sprinkler-irrigating with dam water early in May 1951. The new seeding was irrigated 20 times up to mid-October. Last year he cut the frequency of waterings in half.

Peabody didn't apply any commercial fertilizer until last fall when he put on 300 pounds of 16-20-0 per acre. Sheep grazed the lush, one-year-old pasture stand with relish.

The pond has many uses. It not only irrigates a pasture carrying 100 breeding ewes, but also furnishes good sports fishing for Peabody and his friends.



**Gene Thomas discusses a conservation point with Mr. and Mrs. Peabody.**

**GRASS CONTEST.**—Farmers from 48 counties in Wisconsin are entered in the fourth state-wide grassland farming contest this summer, according to Vic Buralow, University of Wisconsin agronomist and general chairman for the contest.

The contest is aimed at increasing interest in grassland farming, and its goal is to encourage more production of abundant pasture, forage and feed for livestock without wasting soil.



## DISTRICT PROFILE

### HARRY SWENSON of WASHINGTON

THE soil conservation district movement has one of its warmest boosters in Harry Swenson, dairyman of Grays Harbor County, Wash. In his community of Elma he is known as a good neighbor, a friendly counselor, and a man who fairly lives and breathes soil and water conservation. It's good when your own people look on you that way!

Harry Swenson wears his mantle well.

Swenson has been crusading for the district movement since early '40. He is Washington's senior district supervisor.

During his 12 years on the board of the Grays Harbor Soil Conservation District, Swenson has played a big part in setting up the much admired county-wide flood control program. As chairman of his district board for 7 years, secretary-treasurer and vice-president of the state district association, he has helped shape the course of the district movement in the Evergreen State.

Swenson grew up on a dairy farm in Tillamook County on the Oregon Coast, and moved to Grays Harbor County in western Washington at the start of World War I.

Of his early farming experience in the Wynooche Valley, he says, "I was a good man in those days if I do say so myself. Two of us used to get up and milk 46 cows by hand, do a whole day's haying, milk the cows again in the evening and then go out and dance until the wee small hours."

Swenson broke away from farming to manage the Grays Harbor Dairyman's Association for several years. It was while serving in this post that he married.

It's no overstatement when Harry calls his wife "A first class cook." Having put my feet under the Swenson table many times, I can vouch for that.

Swenson has a 140-acre bottom land farm on the Chehalis River, turning out hay and pasture for his 40 dairy cows. He's one of the first Grays Harbor County farmers to use sprinkler irrigation and now waters 40 acres that way.



Harry Swenson. (Myers photo, Elma, Wash.)

He also was one of the first farmers in his soil conservation district to seed an improved pasture mixture under the district program of improved methods of soil preparation and seeding. Many of the new, good-looking pastures showing in the county got their start from the seedings Harry made years ago. He hopes to see the time when all Grays Harbor County farmers will have top quality pastures. His help to others is hastening the coming of that day.

Harry and his wife are active members of Sharon Grange and of the Elma Methodist Church, where Mrs. Swenson has been organist for some 21 years. Taking the lead in civic activities has become normal. "I like to be a good neighbor," he says.

Swenson's good nature makes him an ideal leader of group activities. Many times he has been instrumental in ironing out differences and molding harmony. He always sees that everyone has a chance to be heard.

(Continued on page 16)

# Even the Bean Can Serve

By IRWIN J. TEN HAKEN



**Charles Dodt serving beans at luncheon.**  
(Photo by courtesy of The Manistee News-Advocate)

**B**EANS have their place in soil conservation. That is a bold statement, when one recalls how beans have ravished some of our best cropland. But in the small Finnish town of Kaleva, Mich., beans do have a respected role in soil conservation, as evidenced at the annual meeting of the Manistee County Soil Conservation District.

In 1949 Charles and Harry Dodt, elevator and feed store operators, began wondering how they could participate more directly in the soil conservation program of the local district.

Geographically, Kaleva is the most centrally located town in Manistee County, the logical place for farmer-type meetings. It contains several stores, a bank, postoffice, and garages, but not a restaurant. Here's where the Dodts thought they might do their bit. By furnishing a noon lunch to those attending, the Dodts would make it possible for the Manistee Soil Conservation District to have an all-day annual meeting.

The Dodts discovered appetites! About 100 persons attended that first year and the menu included *baked beans*, hot dogs, doughnuts, and cof-

fee furnished free by the Kaleva Produce Company and served by the Ladies Aid of the Finnish Lutheran Church.

At the next annual meeting the piece de resistance again was beans, a major item of business at the elevator. Nearly 150 attended.

Lunch—featuring beans—continued to be a yearly affair, with the seventh annual meeting, this year, the largest to date for the district and one of the largest in the entire state. More than 300 were present.

This year's program included a panel discussion on Christmas tree production, which is important in northern Michigan. It was led by Taisto Kataja, forester for the American Boxboard Company, located in Manistee. Others on the panel were three district cooperators with experience in planting, growing and marketing Christmas trees.

Another panel, dealing with "Soil Conservation and Its Importance in the Community," moderated by W. W. Russell, district conservationist, included a banker, a newspaper publisher, a farm equipment salesman, and a district cooperator.

Dr. Louis Wolfanger, department of land and water conservation, Michigan State College, made an enlightening talk on world soils and how the soils of America compare with those of other nations.

Both county newspapers were represented at the meeting. Also participating were Extension Service, Forest Service, Production and Marketing Administration, vo-ag classes, veterans' instructors, and representatives of the Michigan Employment Security Commission, and the Michigan Soil Conservation Committee.

Ten members of the Manistee Chamber of Commerce donned aprons and helped serve lunch. Most of the local business men took time to join in the lunch and catch some of the conservation spirit of the day.

Yes, beans, once a scourge in Manistee county, are now in some degree atoning for past destruction by aiding in the district's program once a year.

Note.—The author is soil conservationist, Soil Conservation Service, Manistee, Mich.



# Wildlife on Croplands

*When conservation practices are applied to the land  
the habitat is improved for birds and animals.*

By **EDWARD H. GRAHAM**

Note.—The author, now assistant chief of the Soil Conservation Service, wrote this article when he was chief of the biology division. It is taken from the Proceedings of the United Nations Scientific Conference on the Conservation and Utilization of Resources, held in 1949 at Lake Success, New York.

SOME wild vertebrate animals are considered harmful, a great many seem to have no economic value, and a number are considered useful because of sport, their fur, or other values. Wildlife also has important aesthetic and ecologic values, but such values in practical agricultural programs are usually given little weight.

Along with cultivated crops, domesticated animals, grass, and trees, wild animals are a basic biological resource. Wildlife cannot rightly be separated from "land resources" as it has been separated in the agenda of this Conference. Wildlife is as much a product of the land as any other living resource.

The management of wildlife is different from that of all other living resources in some fundamental respects. Wildlife in the United States is not owned by the person on whose land it occurs. As an inheritance of English law, American wildlife belongs to the State, not as proprietor but in its sovereign capacity for the benefit of all the people. Therefore, while a man may sell his cultivated crops, domesticated animals, livestock, trees and other land products, he cannot sell the wildlife which his land produces. He can, however, sell hunting privileges to those who have obtained a hunting license from the State. He may also, under State law, sell furs which he obtains from animals he has trapped on his own or other lands.

Wildlife also differs from many other living resources in that, for the most part, it is a by-product of lands which are used primarily for the production of other crops. Although some land in the United States is devoted exclusively to the production of wildlife, such as public refuges and extensive marshes, most wildlife comes from land

that is used for cultivated crops, livestock, and wood products.

Because of the nature and ownership status of wildlife, operations on private cropland intended to increase the production of wild animals are most likely to succeed if they have land-use values in addition to their wildlife values. The things that are being done for wildlife benefit on cropland in the United States can be separated into two groups. First are operations on land that has as its chief value the production of wild animals. Secondly, there are land-use operations that produce wildlife on land used also for other purposes.

It has been estimated by the Soil Conservation Service that there are approximately 100 million acres of land in the United States that are not adapted to the production of cultivated crops, livestock or trees, the most suitable use of which is wildlife production. Approximately one-third of this acreage is on farm land. One type of land suited best to wildlife is the marsh which it is not physically desirable or economically feasible to drain. Both coastal salt-water marshes and inland fresh-water marshes have been given special attention for the production of fur-bearers, especially muskrat, and for migratory water-fowl. The specific things done to marshland for such purposes are: fencing, to control cattle grazing; ditching, chiefly to provide wildlife travel lanes; control of water-levels to manipulate vegetation; controlled burning to manage vegetation; and seeding and planting of desired plant species.

Other agricultural lands that can be devoted exclusively to wildlife are odd areas. These are usually small, such as inaccessible corners of cultivated fields, gullies, rough and rocky sites, highly eroded spots. Odd areas are managed for wildlife production by protecting them from fire and grazing. They are frequently planted to trees and shrubs that provide wildlife food and cover. Although individually small, the total acreage of odd

areas is very large—amounting perhaps to something like 10 million acres in the United States.

In addition to the development of lands such as marshes and odd areas that are best used when they are managed exclusively for wildlife, there is a group of practices that produce wildlife as a by-product of cultivated crop production. One such practice is the field border planting. In many regions the margin of a crop field, where it adjoins woodland, produces little or no growth of crop plants and frequently erodes into an unsightly and unproductive area. Because of the shade and root competition of the adjacent trees and the infertile nature of the soil, most plants make poor growth on field margins. After considerable trial the Soil Conservation Service found that two perennial legumes would grow well under such conditions. These two plant species are now used a great deal in revegetating crop field borders. The larger shrubby species, *Lespedeza bicolor*, is planted next to the trees in a band 15 or 20 feet wide. Beside the bicolor on the field side of the border the smaller wand-like *Lespedeza sericea* is planted in a band of comparable width. Sericea serves as a turn-row for team and tractor and for wildlife cover. The seed of bicolor provides A-1 bobwhite quail food and the flowers are an important source of nectar for honey-bees. Millions of bicolor plants and thousands of pounds of seed of bicolor and sericea lespedezas are produced for field-border plantings in the United States each year.

The hedge is a land-use practice on cropland that is becoming more and more popular in the eastern United States, and to some extent in the humid West. The plant most used is multiflora rose (*rosa multiflora*), which grows to a height of 8 or 10 feet and a width of 10 or 12 feet. It is not big enough to shade crops or to provide root competition and it does not spread into adjacent land that is in use. Multiflora rose hedges were first used in conservation operations as contour guide lines and as barriers against erosion and swift runoff of water on steep slopes. The stems of the plant are stiff and very thorny, and it is now being used as a living fence because it will turn livestock if plants are set a foot apart in the row. Multiflora rose fences are used to separate crop fields from pasture, and to protect gullies and other odd areas from grazing cattle. The hedges provide excellent wildlife cover and contribute to a permanent land pattern of

value to wildlife. The present demand for multiflora rose far exceeds the supply available from both public and private nurseries.

The revegetation of streambanks is receiving increased attention by both soil conservationists and wildlife managers. Stabilization of streambanks not only protects cropland through which the stream runs, usually very productive bottom land, but it also produces excellent wildlife cover of desirable pattern in terms of strips of vegetation across crop fields. Since the most desirable plant species for streambank stabilization have proven to be shrubs or plants of shrub-like form, their cover value is considerable. Protection or eroding streambanks also improves the stream for fish and other aquatic life by reducing sedimentation. Streambank stabilization, combined with the soil conservation program necessary on the watershed to supplement and make secure the work on the streambank itself, is one of the major contributions to improvement of stream habitat. In the United States such work has proved that it can convert muddy streams to a good condition suitable for trout.

Throughout the central United States windbreak plantings of trees and shrubs have been used a great deal especially to protect farmsteads and crop fields from damaging winds. Considerable attention has been given to the selection of trees and shrubs in windbreaks for their wildlife value, because such woody plantings in otherwise treeless areas can be of great importance to wild creatures. Frequently a row of conifers is included in a windbreak to provide winter shelter for wildlife. The margins of windbreaks are planted to shrubs that produce fruits and seeds that provide food for wild birds and mammals. The establishment of some 7,000 miles of field windbreaks contributes much to the improvement of cropland for wildlife.

A land-use device on cropland of value to both fish and other wildlife is the farm pond. Farmers and ranchers, receiving technical assistance from the Soil Conservation Service alone, during the past 15 years have constructed more than 125,000 ponds. These ponds are built on selected sites with a design that renders them a permanent part of the farm setup. They are frequently used to provide water for livestock, for irrigating small gardens, spraying orchards, or some other agricultural purpose. Nearly half of them, however, have been carefully stocked with the correct number of



large-mouth black bass and bluegill / sunfish ("bream") to permit their management as fishponds. Many of these ponds are fertilized with commercial fertilizer and are producing about 200 pounds of palatable fish per surface acre per year. A great many of the ponds that have been constructed are fenced, protecting them from livestock. The area within the fence is often planted to trees and shrubs which help to make the pond and the fenced area around it a particularly valuable small refuge for fur bearers, water-fowl, and game species, as well as fish.

The management of marshes, odd areas, ponds, and streambanks, and the establishment of windbreaks, hedges, and field borders on land used primarily for the production of cultivated crops can make cropland excellent wildlife habitat. Such practices are applied to the land first because they are good for the land itself and therefore of value to those who operate the land. Because of this they are the most permanent and important things that can be done to agricultural land to make it productive of wildlife.

Many other things can be done to improve cropland for wildlife. Unless such measures can be assured a permanent place in the agricultural scheme of things, however, they cannot be depended upon for long to produce the wildlife that agricultural land can make possible. Since more than half of the land acreage of the United States is in farms and ranches and since something like 80 percent of the hunting and much of the fishing is done on agricultural lands, it is evident that in the United States we must depend upon such lands for much of the useful wildlife we are to produce. We believe that the things that have been done through soil and water conservation work in the United States have pointed the way toward the most permanent and productive use of cropland for wildlife. The practices described are being applied. They are producing wildlife in America. As we husband our land more and more carefully in the future wildlife will take an important place along with the other crops that the land produces.

## Two Days of Talking Things Over

TWO Federal agencies charged with primary responsibility for developing soil and water research, and for taking the results of such research to American farms, joined in a conference at the Plant Industry Station in Beltsville, Maryland, May 14 and 15. The meeting signalized a recently inaugurated program of closer liaison between the Soil Conservation Service and the Bureau of Plant Industry, Soils, and Agricultural Engineering. The purpose of tighter teamwork is to assure an early recognition of problems on which scientific investigations are needed, and to speed new information, as it is acquired, out to the farms and ranches. A two-way flow of communication is being set up throughout the country.

The conference was headed by the chiefs of the two bureaus, Dr. Robert M. Salter and Dr. Albert H. Moseman. Supporting them were administrative and technical officers of the Beltsville and Washington staffs, together with a large representation from SCS's Northeastern regional headquarters, which helped in planning the conference.

This meeting was a sort of "trial run," serving as an opportunity for a large part of the new "team" to get acquainted and to talk over mutual problems on program panels in the course of looking over some of the experimental plots on the station farm. Close research liaison, said John Lamb, Jr., talking on how to maintain technical standards in the SCS program, will "help to develop confidence, strength and competence" in doing the job out on the farms.

Moseman and Salter discussed the work of their respective bureaus, with special stress on matters of mutual interest. The conservation of soil was explained by Salter as the prevention of all sorts of soil deterioration, not erosion alone, and as including the building up of soil. And the function of SCS is to make use of all available technology to protect the farmer's resource and to build it up to major production.

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# Pest Control

as an example of how community and neighborhood land problems can be tackled successfully when city and country people work together.



By **HERB BODDY**

**This water-laden area is fast being turned into crop and pasture land.**

**C**HANGING a mosquito haven to lush forage and cash cropland, is a pretty big order. That's the story of an old Moro Cajo Slough at the hands of an aroused community.

"Skeeters," hiding out in the big marsh, north of Castroville, Calif., have long preyed on town and country people for miles around. Few, indeed, kept calm when the pesky, buzzing insects were about.

But today the mosquitoes are on their way out. Their ouster from Moro Cajo Slough through draining of their breeding ground affords relief to farmers who share ownership of some 1,200 acres of the marsh. It means that wet land which has bogged down tillage work season after season is now ready for development by conservation farming.

Draining the wet acres was not easy. It took a lot of planning, teamwork and experience. Landowners had to be brought into agreement, the aid of interested groups enlisted, and engineering lined up. Wildlife values had to be considered.

Those who joined in the successful project are being hailed today for a job well done.

Directors of the Elkhorn Soil Conservation District, the coordinators, describe the project

When representatives of agriculture, industry, business and government work side by side on soil and water conservation work as in this instance, we see one of the newer trends that are hastening land improvements the country over.

Six interested groups and ten landowners helped to put over the Moro Cajo job. Participating agencies included the Northern Salinas Valley Mosquito Abatement District, the Elkhorn Soil Conservation District, Monterey County, the State of California, the Kaiser Aluminum Company, and the Soil Conservation Service. Cooperating farmers included the G. W. Lyons estate, B. Lyons, the California Artichoke and Vegetable Growers Association, the California Ranch and Packing Co., J. P. Dolan and Son, V. D. Sella, John Mansera, Rena Whittington, Margaret A. Collins, and J. Sandholdt.

The marshes of Moro Cajo are well known to many Monterey County residents. They're on State Highway No. 1, two miles north of Castroville. As a haven for roving swarms of mosquitoes, the watery bog is made to order. In fact, Howard Greenfield, manager of the Northern Salinas Valley Mosquito Abatement District, had the area tabbed as one of the county's most troublesome breeding spots.

Landowners often wished they could use the slough. A thousand acres or so, tilled and

Note.—The author is in the current information division, Soil Conservation Service, Portland, Oregon.



farmed the conservation way, would produce a lot of good pasture and row crops. But as things were, the land was good for only a little grazing.

It wasn't that the farmers hadn't tried to put their land in shape for peak production. They laid out a lot of ditches over the years. But, lacking a good outlet for waste water, the slough stayed wet.

Late in 1951, farmers asked directors of the Elkhorn district for some help. And the district governing board invoked the assistance of technicians of the Watsonville headquarters of the Soil Conservation Service.

The technicians mapped out a drainage plan which drew support from both farmers and district directors. The plan called for lowering the outlet channel at Moss Landing Harbor, replacement at a lower elevation of tide gates and

culverts at the county road, and removal of goose-necks on culverts at State Highway No. 1. In addition, a pattern of "feeder" ditches, connecting up to the main outlet channel, were to be laid out by individual landowners.

Such a plan was needed to stop the inflow of tidal waters at high tide and provide good drainage of flood waters from the lands above tide gates. Temporary flooding of slough lands would occur during periods of heavy winter rains, but adequate drainage through the normal growing season would be assured.

With the technique laid out, directors began contacting interested parties, lining up easements for ditching and operating funds.

The Northern Salinas Valley Mosquito Abatement District voted a sum of \$2,500 to cover its

(Continued on page 19)




**Studying the Moro Cajo problem: Randy O. Barsotti, G. W. Lyons, Robert Blohm, president of the Elkhorn Soil Conservation District, and Merrill A. Wood, of SCS.**



# In the Air and

*Here's a radio station that tells a story that it tells of*

By HOWARD




Gullies on the land before planting began.

outstanding program of public service was originated—"The Tri-State Farm and Home Hour." This show is still a popular daily feature.

But WWVA wasn't one just to talk about farm problems. It had to do something about them.

When WWVA increased her power to 50,000 watts in the 1940's, and set up her transmitting equipment and towers on a former 163-acre farm near St. Clairsville, Ohio, the land was in very poor condition. The entire area was a sad picture of erosion and waste.



Eroded land on lower side of transmitter site.

**W**HAT possible connection could a radio station have with soil conservation?

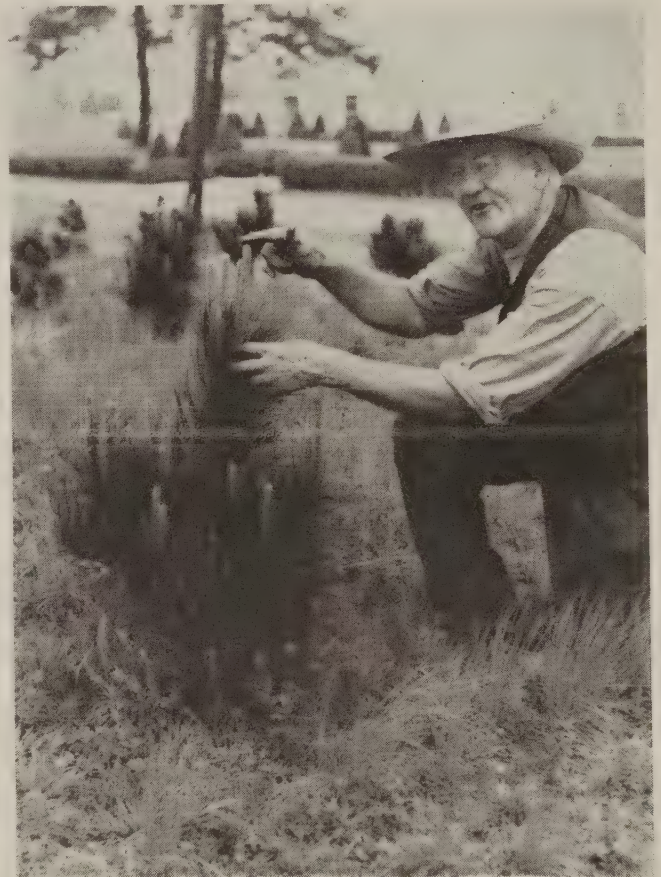
In the case of WWVA in Wheeling, W. Va., the tieup is a direct one.

Years ago, the Federal Communications Commission, the guiding hand of broadcasting, defined the duty of radio stations as being to serve the "public interest, convenience, or necessity." And WWVA has gone a step further.

Our station went on the air in 1926, a pioneer in the great Ohio Valley. And within a very short time it was serving a large rural audience.

Ten years later, WWVA began to appreciate the full importance of farm broadcasting, and planned a series of programs to carry needed information to the thousands of rural folks in the listening area. This area, even then, was an extensive one, covering a vast portion of Ohio, West Virginia, and Pennsylvania. And so it was that in 1936 an

Note.—The author is promotion director, WWVA, Wheeling, W. Va.



Early in the planting program, the pines looked like this. New growth was watched and measured.



# on the Ground

*practices the soil conservation  
its daily program.*

W. MEAGLE



**Here are the trees shown at left, in 1953.**

First step was to purchase and plant 3,000 red and white pines. A year later, E. V. Jotter, Ohio State Forestry District supervisor at Cambridge, became interested in the possibility of using the land as a demonstration project to show the value of reforestation in controlling erosion and turning waste lands into productive and attractive areas. WWVA wholeheartedly backed the idea. The cooperation of C. W. McKnight, SCS work unit conservationist, and Bob Lang, county agricultural agent, was obtained and an extensive reforestation project was worked out.

Since then, a series of additional plantings has brought the total number of trees on the property to more than 35,000. These trees are in various stages of growth, some now as tall as 15 feet. In addition, contour furrow planting on hillsides has been effectively demonstrated, and highly successful.

In 1949, WWVA reached an agreement with the Ohio state game protection division of the Conservation Department to use this land as a game refuge. Feeding stations were established and

(Continued on page 16)



**"Front door" of WWVA's transmitter site. Immediate vicinity has been completely landscaped.**



**Open field above gullies before planting.**



**Same field seen immediately above, as it looks today.**



# Precision Is Their Business

By FRED W. HERBERT

**T**WENTY miles south of San Francisco the Pacific Ocean coast line forms a beautiful and almost perfect arc. Hence, the picturesque name, "Half Moon Bay," for the town that is situated there. Close to the ocean around Half Moon Bay are areas of deep, fertile soils on valley bottoms and alluvial fans. These soils produce a great variety of irrigated crops, including French artichokes, brussels sprouts, cauliflower, broccoli, kale, parsley, onions, peas, and carrots, as well as nursery stock, flowers and flower seed. A mile or so back from the ocean the lands are sloping and hilly. They have highly erodible soils. If protected, these soils are capable of supporting very profitable dairy and livestock enterprises. The need for protecting them with soil conservation practices was early recognized and the Half Moon Bay area became a part of the first soil conservation district in California—the San Mateo County Soil Conservation District, organized in 1939.

An important practice in the San Mateo County Soil Conservation District is that of pasture irrigation. Exact techniques are required to establish irrigated pastures. This brings our little story up

to its "leading man," who is Manuel Sousa. Manuel is an assistant engineer on the staff of the Soil Conservation Service, assisting the San Mateo Soil Conservation District. This story has to do with the way a man's business and his hobby sometimes fit together.

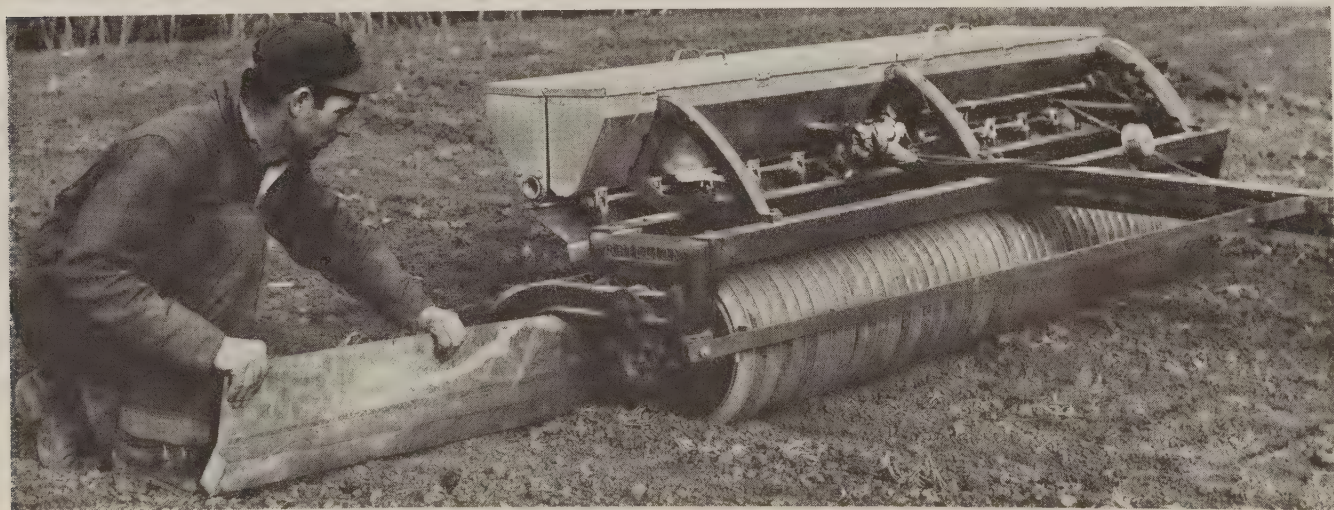
I came to know about Manuel's hobby through his work on seeding technique in establishing pastures. In explaining the technique, he pointed out that he had to figure the amounts of each kind of seed in the mix, the rate of movement of the seeder, and the area to be covered. He designed a pan to catch the seed, and a fractional-acreage meter. By running the seeder one-tenth of an acre, then weighing the seed and determining the proportions of the different kinds, he could calibrate the seeder openings and secure any desired rate of seeding. He perfected the method which resulted in obtaining excellent stands of the pasture plants.

I complimented him on his painstaking exactness.

"Well," he said, "After all, precision is my business."

Then he told me about his hobby and that is the story of the "Half Moon Bay Spanishtown Dons."

Note.—The author is assistant state conservationist, Soil Conservation Service, Oakland, Calif.



Seeder, and the seed pan designed by Manuel Sousa. Its value is told in this article.





**Champions all: the Half Moon Bay Spanishtown Dons, famous drill team. They are led by a master of precision who, in his regular job as a soil conservation technician, is equally exact in his measurement and use of a seed mixture.**

Manuel founded and organized this drill team in June 1947. The idea was to give young men something worth-while to do in their spare time and also benefit the community. In the gold rush days of California, the town of Half Moon Bay was inhabited by the Spaniards and, by them, given its original name of "Spanishtown." Hence, the name "Spanishtown Dons" was born. A striking Spanish-type uniform in black and gold was designed and has become a unique feature of the organization. The team is composed of 21 men, 4 color bearers, 2 banner bearers, a majorette, and a drill captain.

The Dons have a national record of winning 150 consecutive first place awards. They have never been defeated in field competition. They participated in 405 parades and exhibitions, including numerous television appearances. They have won 202 firsts in 207 parades. In their quest for strenuous competition, the Dons have traveled over 36,000 miles and performed before 13 million people.

The "Dons" was the first civilian drill team to drill at the Capitol Grounds in Washington, D. C., and the first drill team to win the Grand Award

at the famed Wisconsin Spectacle of Music at South Milwaukee. They have revolutionized modern drilling by introducing the heavy cadence, slow turn, freeze, and other original maneuvers. The team won the National Championship in 1949, 1950 and 1951. The team has accumulated a collection of 126 trophies.

I had no trouble getting the story of his team from Manuel. He is very enthusiastic about it and gives all the credit to the young men and to his majorette. The majorette is Patsy Speer, winner of the California State Championship for the past 3 years. She has a perfect record of 25 firsts in as many competitions. She specializes in three-baton twirling and has won 33 trophies and 22 medals.

Manuel is proud of his team. About himself he is reticent, but I learned he is the holder of the California State Championship award for "Best Drill Team Captain." His highly entertaining and truly inspiring manner of cadence calling, complete with Spanish commands, has won him 20 medals.



This year, in July, the "Dons" made appearances in Chicago, New York and Washington, D. C. In New York they performed on Ed Sullivan's Toast of the Town television show. In Washington they were at the Plaza, where they were presented by their fellow Californian, Vice President Richard M. Nixon.

Because of the diversity of farming in the San Mateo Soil Conservation District, Manuel's conservation engineering duties require him to work closely with farmers on a great variety of practices such as irrigation systems, various types of dams, stock water ponds, drainage, terraces, land leveling, and moisture and compaction testing.

I asked Manuel if this work was a training ground for his hobby, or whether it was the other way 'round.

"Well, Fred," he said, "Although it is very strenuous, I get real satisfaction and enjoyment in training these young men and demonstrating the results of that training. That is why I spend much of my spare time and all of my vacations doing it. And it helps my regular soil conservation work, too. Soil conservation engineering and running a drill team really have a lot in common. In both cases you deal with people, you must have patience, and both of them do require precision."

Quite a lot, thought I, remembering his seeding system and having seen his amazing drill team in action. Said a fellow worker, "Manuel, you know, is a perfectionist by nature."

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## IN AIR AND ON GROUND

(Continued from page 13)

small game was released. The stations are regularly supplied during the winter by the Conservation Department. Today, all types of game, including deer, may be observed taking advantage of the feeding stations and the protective cover.

WWVA is indeed proud of her public service, on the air broadcasting conservation information and also on the land. The WWVA transmitter site and the surrounding 163 beautiful acres are veritably her "pride and joy."

## HARRY SWENSON

(Continued from page 5)

Harry's guidance is one of the reasons for the notable success of the Grays Harbor Soil Conservation District. The board's policy of inviting those with grievances to "come and talk things over" has paid off in large measure. It's men like Harry Swenson who are putting the "go" in the good land use movement in our state.

—EARL A. LEWIS

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## TALKING THINGS OVER

(Continued from page 9)

Grasses and mulches in the northeast came in for consideration, as did soil conditioners, pasture establishment, weed control, corn production under irrigation, tillage and fertilizer placement, nutrient-legume-grass relationships, and photoperiodism.

As a result of these 2 days of mingling together in field and forum, it is expected that each agency, and ultimately the farmers and ranchers, will derive good dividends in terms of increased understanding and efficiency.

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**RESOURCES GROUP.**—The new president of Resources for the Future, Inc., is Dr. R. G. Gustavson, chancellor of the University of Nebraska. Horace M. Albright, president of the United States Potash Company, Inc., has been made chairman of the board of directors.

Resources for the Future, Inc., is a nonprofit corporation formed by a committee of citizens who accepted an invitation from the Ford Foundation to serve as an advisory group on resources, and to assist the officers of the Foundation in planning a program and to work in the field of research and education for resources development and conservation. Resources for the Future, Inc., is supporting the Mid-Century Conference on Resources for the Future, to be held in Washington, D. C. in December.

Other members of the board of directors are: Edward J. Condon, vice president of Sears, Roebuck and Co., president of Sears Roebuck Foundation and former president of Friends of the Land; E. B. MacNaughton, formerly president of Reed College and of the First National Bank of Portland, Ore.; Leslie A. Miller, former governor of Wyoming and chairman of the Natural Resources Task Force of the Hoover Commission; Fairfield Osborn, president of the Conservation Foundation; William S. Paley, chairman of the board of the Columbia Broadcasting System; Beardsley Ruml, consultant; and Stanley Ruttenberg, director of education and research, Congress of Industrial Organizations.

# A Farmer and His Community

By HUGH F. EAMES



Joe and Esther Sena in a happy mood.

**I**T was just before Christmas 1946 at Worthington, Mass. Joe and Esther Sena, making their start in farming on their own, had put daughter Sandra to bed and had wrapped the last family presents, when fire struck in the middle of the night.

House, barn, most of the other buildings and equipment, and many first year's crops, including 18,000 bushels of potatoes were destroyed. There was no insurance. All resources, accumulated in 13 years of hard work for other farmers, seemed to have been wiped out.

A few days later, just before Christmas dawned, neighbors came to the wreckage and gave the Senas a neatly hand-lettered message bearing the endorsements of 90 families and individuals. It read:

"We, your friends and neighbors of Worthington, join in sending this token, hoping that it will identify to you the Town's interest and approval of your efforts, and encourage you to continue your development in the face of so disheartening a setback."

With it they left \$800 in cash.

This token did all that Worthington folks had hoped. It revived the family's spirits, and gave them a new foundation upon which they since have built solidly. This is reflected in choice of Joe for a 3-year term as selectman and a like term as assessor, in his elections to the PMA committee and as director and treasurer of the Hampshire County Soil Conservation District, in his selection as Parent Teacher's Association Treasurer and Rod and Gun club president, in the choice of Mrs. Sena as a director of the Worthington Health Association, and in their influence and leadership in other town and county activities.

The Senas' 575-acre Hickory Hill Farm has become a model for farmers who seek to make best use of their land and protect future productivity. When you see what the Senas have done, and know the methods of their operations, you understand what they mean when they say that "material things are unimportant in life; it's the neighbors and friends—people who have confidence in you and what you do—that really count."

Joe Sena is principally a potato grower, with side lines in sheep and beef, and a growing desire to raise certified seed potatoes. This is not what his preferences always have been. In grade school days—that's as far as he ever got in formal education—Joe's interests, developed under 4-H guidance of County Agent Harold Eastman, were in poultry, dairying, potatoes, and other vegetables. All of these, except potatoes, have been dropped.

Joe is one of the six sons of Andrew Sena, a former miner who farmed a small acreage. All the sons are farmers, and a daughter is a farmer's wife. Joe got his start in agriculture at Stafford Springs, Conn., when he was chosen to represent his country school in a speaking contest at graduation exercises. He won a \$5 gold piece and used it to buy chicks. When the family moved to Easthampton, Mass., he joined 4-H and other poultry clubs and pyramided his flock to 1,300 birds. In

Note.—The author is head of the current information division, Upper Darby, Pa.



4 years he won 32 ribbons and 4 medals in county fair and other competitions.

Meanwhile, on developing an interest in dairying, he sold some of his chickens and bought a \$175 purebred Holstein cow, due to freshen in a week, to start his herd. He got her cheap because she milked only at three quarters and had a record of producing only bull calves. She confounded the experts by dropping a heifer calf that Joe named Josie. He showed her at the Eastern States Exposition that year, and was disappointed when she placed tenth among 21 entries. So, he spent another \$100 and bought Fancy, a better type, 3-month-old calf. Next year, again at Eastern States, Fancy placed second as a calf and Josie won first place as a junior yearling. From then on in 4-H years, he completed 23 projects and won 950 ribbons in 97 poultry, dairy, and vegetable competitions. In one season's tour over the Vermont-Massachusetts fair circuit his dairy cattle won \$600 in cash prizes.

In pyramiding his successes he won the Hampshire County championships in dairy and poultry, and became the first Hampshire County farm boy to win the State silver trophy for accomplishments in 4-H work. A factor in this was his \$2,850 dairy herd. He twice captured individual sweepstakes at the Boston Poultry Show, and won the Eastern States dairy championship when one of his cows, a 6-year-old, produced 12,790 pounds of milk and 467.2 pounds of butterfat, at 4-percent test, in 1 year. He and his sister Helen won the State championship as a 4-H dairy demonstration team and a trip to the National Dairy Show at St. Louis. For 2 years he was State champion 4-H boy in Massachusetts.

He became president and held numerous other offices in local, county, and State 4-H dairy clubs, and was secretary-treasurer of the Easthampton Farmers Club, an organization of farmers and businessmen.

But, more important, his achievements influenced his dad to replace a herd of 14 grade and scrub cows with 34 purebred Holsteins, 12 of which Joe owned. After the herd had been increased to 100 like animals, Joe sold his cows to his brothers and bought and developed a pasteurizing and distributing milk business in which he handled 1,000 quarts

daily until 1942. Then he and Mrs. Sena, city-born daughter of the Clark family, sold their business and went to Hanover, Va., where Joe became manager-operator of a 2,600-acre farm owned by a group chiefly interested in tobacco.

It was a wheat-corn-oats enterprise, with beef cattle and hogs. In 3 years Joe handled 200 head of Angus and 800 hogs, turned run-down land into lush pastures, rebuilt worn-out soil and used as much as 280 tons of lime in one season. When he substituted barley for corn and began to install conservation practices, to which he had been introduced by the county agricultural agent, nearby farmers caustically commented about his "inexperience" and could not understand why he didn't continue to follow their old established methods. But Joe's methods paid off handsomely and enabled the Senas to enlarge the nest egg which they used when they returned north in 1945 and bought the Worthington farm.

In operations here, and on 40 to 50 rented acres, Joe put half his cropland into grass and half into potatoes. He planted potatoes up and down the slopes the first year, and had much difficulty in cultivating and harvesting. He then turned to the new Hampshire County Soil Conservation District, became one of its earliest cooperators, and obtained help of SCS technicians in establishing conservation practices. The pay-off is found in his 1952 potato crop. It averages 600 bushels (240 is the national average) per acre, as compared to the 300 bushels that he harvested in 1946.

Contour strips and diversions have been his principal means of controlling soil erosion and runoff surface waters. He plowed his first terrace, then hired a bulldozer operator to build others, until 40 acres were thus treated. Building with a bulldozer, rather than a plow, is quicker and more economical, Joe says, unless a farmer has a lot of time and can stretch out the job.

Joe uses fertilizer and lime only as yearly soil tests reveal the need. Lime is never applied until pH is 5.5 or less. Use of fertilizer runs to 2,400 pounds per acre.

He did a good turn for all other taxpayers in the town when he interested officials in building an extra diversion terrace that would end the piling-up of gravel and silt on a highway. Re-

removal of this debris had cost taxpayers \$300 to \$500 annually. Now there is none to shovel and truck away. Likewise, he interested the town in replacing a 4-inch culvert with one measuring 18 inches. Now, however, with the strips, diversions, and other practices on Joe's farm, the original 4-inch pipe would be too large.

The personal work that Joe Sena has done with them, and what they have seen happening in production on his farm, have been highly important in convincing many farmers that Joe is on the right track. From a handful of farmers that belonged to the Hampshire Soil Conservation District in 1947, membership has grown to 600 farmers representing 55,000 acres. When you ask Joe about this district progress he modestly says, "A lot of farmers have seen the light; some hard-shells, who could see only harm coming out of it, have softened up." And, he notes that farmers who swung to solid grassland are now reestablishing it in contour strips.

Joe needs a good farm pond for fire protection and for spraying his potatoes. He tried to obtain one, on his own, by selecting a site and hiring a bulldozer operator to build it. Along came a hard storm and out went the dike. "Shucks," says Joe, "it cost me \$210—money foolishly spent. I'll try again soon, but this time the SCS technicians will select the site, plan the pond, and supervise its construction, and I'm sure I'll get a sound job."

Because he believes his potatoes are equal to any that come out of Maine, or "Little Maines," Joe is anxious to become a producer of certified seed potatoes. Since there is no State regulation, he intends to stimulate the establishment of standards. With good seed and good land fresh out of sod after 2 years of rest, he believes he can meet any requirement.

Joe and Esther Sena have two daughters, Sandra 11, and Cynthia 3, and one son, Tim, who is 1 year old. Sandra already is following in her dad's 4-H steps. She recently won a silver trophy at the Cummington Fair with three pure-bred Shropshires that she developed in 4-H Club work. "Best in the show," the judges said. "Joe was as happy as Sandra, when the results were announced," Mrs. Sena observed. "Glad we are back in the farm show business," Joe exclaims.

In the cozy farm home, which, like the barn and other buildings was built from lumber cut from the farm woods, you'll find a bit of canvas, maybe a landscaping or still life, in oils, hanging against the knotty-pine paneling. Joe says, "I couldn't draw a nail. Esther did it and I think it's a swell job. If it were not for her, I wouldn't be as far along as I am now."

Occasionally Joe goes out and does auctioneering, or custom work for other farmers. But he is most interested in doing the best possible job on the home acres. He practices what he preaches. He won the State conservation award for Hampshire County in 1951. The Senas' big idea is summed up by Esther when she says: "It's our way of life; not just something we do. All our aims, ambitions, plans, and living fit into it. It keeps us helpful and happy."

---

## PEST CONTROL

(Continued from page 11)

share of drainage work and the Kaiser Aluminum Co. underwrote its share of channel improvement. Cost of culvert work was borne by county and state highway departments. Farmers agreed to pay for lateral ditches.

The task of scientifically mopping up the spongy old bog was accomplished early this year without fanfare. Farmers and interested groups liked what they saw. Slough water flowed steadily into Monterey Bay. Ponds began drying and water-logged acres became tillable for the first time.

Moro Cajo Slough is still a bit wet in places, and you'll need hip boots to cross some of the swales. But the day isn't far off when farmers figure they can say goodbye to their wet lands.

This fall, farmers plan to have some 200 acres of the slough seeded to selected grasses and legumes like birdsfoot trefoil and alta fescue. More new seedlings are on the way. After a spell in pasture, fields will go into artichokes, then back to hay and forage again in line with the best principles of complete soil conservation planning.

With a good share of its mosquito population rubbed out and a big piece of new farmland added to its agriculture, Monterey County is proud of the headway its farmer-conservationists are making under the good land use banner.



# It's Old Stuff in the Old World

*Where Soils Are Sacred, Conservation Is An Accepted Obligation.*

By HENRY C. LINT

THAT we are on the right track is essentially the lesson one can learn from seeing conservation practices in Europe. Farming has been going on in parts of Austria, Italy and Yugoslavia for several thousand years. There are many places where erosion has taken its toll and formerly good lands are probably useless for all time to come. But the important thing, and the thing that helps accent the conservation movement in the United

Note.—The author writing as agricultural attache at Vienna, Austria, was formerly district conservationist, Soil Conservation Service, Hackensack, N. J.

States, is the multitude of places where the very practices being advocated have been working, not just within our generation, but for hundreds and perhaps thousands of years.

European agriculture is still on a manure-economy basis, with livestock as motive power and the resultant high percentage of the land in pasture and rotational hay. That's of course favorable to conservation. Fortunately, the rainfall generally isn't of the gully washer type. There is a great deal of non-contour farming but in general the steeper the slope, the more nearly the cultivation approaches the perfect contour. Wherever there has been deviation from this principle, or neglect



This stream with rock-faced slopes now entirely covered with sod has taken care of spring runoff from Austrian mountains for many, many years.





**Years of contour cultivation have produced bench terraces kept permanently in sod in the high Alps.**

of maintenance on critical slopes, out has gone the soil. The demonstrated lesson therefore is that contouring is effective and is, indeed, the only sound basis for thousand-year agriculture.

Another lesson to be taken from the book of European experience is that of permanence in construction. In June 1951 I delivered one of the American 4-H farm youth exchanges to a beautiful frame home in Austria. The walls were solid stone and 2 feet thick. There wasn't a crack in the stucco outside or the plaster inside. The doors were over 2 inches thick, they didn't sag or creak and they still fitted as doors should. This house was built in 1596. Right across the road was said to be the oldest church in Austria, built in the eighth century. In other words, when Europeans build, they expect things to last hundreds of years. That same expectancy extends to their conservation structures.

There are miles of main drainage ditches with the bank slopes paved with cut stones 12 inches thick. Some are moss covered with age. We don't have any nicer work where a brook passes through the city park at home. The Austrian thinking regarding the cost of such installations is that if one amortizes over eternity, the per annum cost is nil, on the same reasoning that when any number is divided by infinity the answer is zero.

Our primary goal is permanent agriculture, but we could learn something from the Europeans about permanent construction. There is a certain degree

of pride in a well-built structure, and if it has cost considerable time and money it is likely to be taken care of.

One of the most revealing illustrations of the European attitude was handed me by a very good friend who emigrated to the United States from Denmark. It's a toss-up whether Denmark, Switzerland or Holland rates first for being painfully clean and orderly. As a boy, my friend had to sweep the street of the village in front of his house every Saturday morning. One time, boylike, he was hurrying through the job so he could join the others playing ball. Perhaps he was doing substandard work and his father gave him a bit of advice: "When you have finished with your work everybody can see how good the job is—but no one can tell how long it took you to do it." I often think of that as I look at some of the well-constructed stone dams and stone-faced streambanks carrying the runoff water from the mountains.

The farmer in the high Tyrolean Alps who dug out the little pockmark depressions in his pasture terraces by hand probably never heard of a basin lister, and if he had one he couldn't use it on the 40 percent slope. But he knows the necessity for saving every drop of moisture just as well as the farmer in Western Kansas.

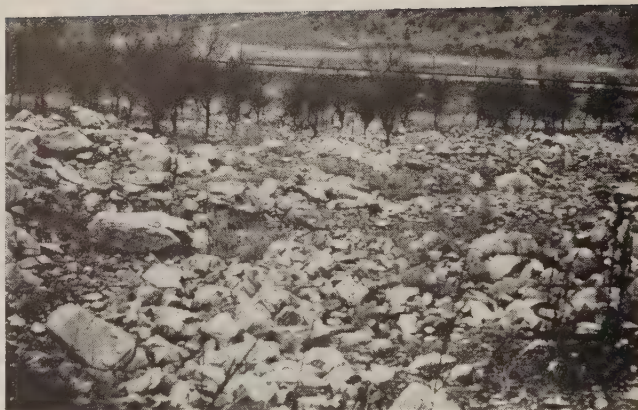
I'm sure that the grower just outside of Zagreb in Yugoslavia couldn't call up a district supervisor and request a technician to lay out lines for his contour peach orchard. But the orchard's there,



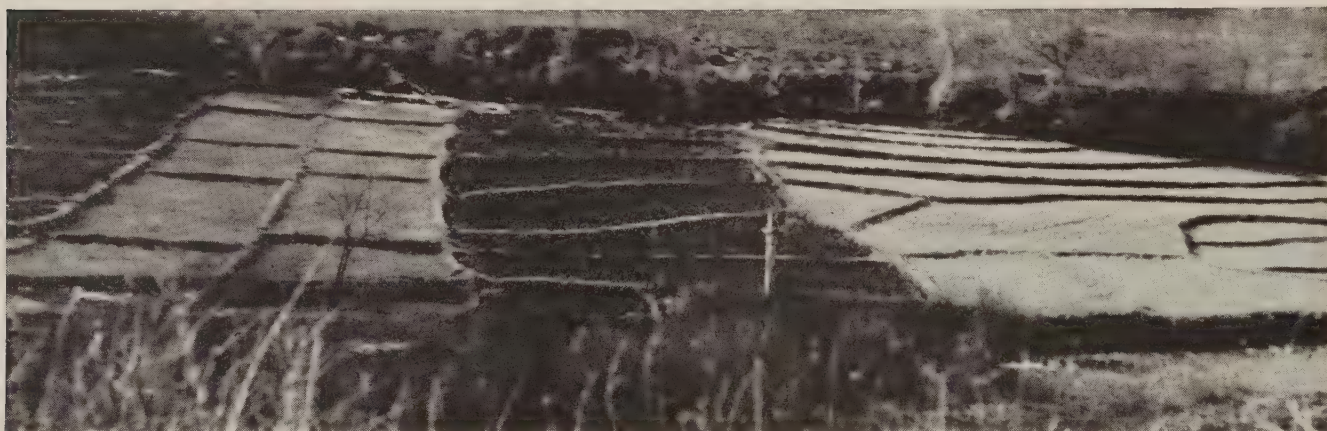
and on the contour, just as nice as anything Bryon Roberts has in New Jersey.

We've used bedding in New Jersey as a simple treatment for improving water-logged pastures, but one has to see the thousands of acres of poorly drained land in Croatia laid out in perfect contour beds and growing excellent wheat crops to realize the practice has such potentialities.

Stone bench terraces are everywhere to be found in Europe, particularly in the vineyard sections. Many of the slopes are over 45 percent and certainly without such terracing the hill and mountain sides would today be of use only for forests. One has to see the hundreds of miles in the east coast of the Adriatic south of Rijeka fully to appreciate the value of such practices. It is said that in times past this area was well covered with trees



**These stones, some larger than a man, washed into a pear orchard. Orchardists head up trees very high, and in some places the deposit was 4 feet deep. There was nice clean valley soil here before the outwash from the mountain inundated it.**



**Small terraces thrown up on the contour hold all the Serbian rainfall. These may be for rice cultivation.**

which were cut down by the Venetians to build ships. There was no reforestation and most of the area is barren rock and worthless for all time to come. In striking contrast, there are some areas where bench terraces have been built and many olive groves with trees 12 inches in diameter are to be seen. One has to eat a few of the Dalmatian cherries from the market booths in Split to appreciate what bench terracing can bring forth from what otherwise would be barren land. In the Yugoslav installations, instead of the flat land sloping gently toward the stone wall down the slope, it slopes toward the wall above, and in several places I saw half-elliptical concrete waterways at the base of the stone wall to take care of runoff. Of course, the main watercourse was stone.

One can't take time to check the past history of everything interesting. One example of strip



**Dam in gully running parallel to road in Austria. Small tile through dam drain out water held back, while wier notch takes care of freshets.**





Wheat growing on perfect contour beds in Croatia, March 1951.

Oxen plowing perfect contour strip for potatoes, in Macedonia, January 1951.



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cropping must have been a quarter of a mile in from the road. As far as I could see, one had exactly the same slope on either side of a lane going up the possibly 20 percent grade. On the right, the slope was in contour strips with not a sign of erosion. The area on the left hand side of the lane was gullied and practically worthless even for goat pasture. If there are still in the United States any skeptics about the efficacy of strip cropping send them to Macedonia, and if they can find this same place all their doubts will be dispelled.

The old adage concerning "nothing new under the sun" has a fuller meaning when one remembers all the arguments that raged in the late thirties about the value of contour strip cropping, and then, some 15 years later comes across a farmer in "benighted" Macedonia plowing perfect contour strips with an ox and a wooden plow. One wonders which really is the older, strip plowing or ox plowing.

While there are examples galore of the failure of recognized conservation practices through lack of maintenance, there are possibly many more where there has been adequate maintenance, and where the land is still producing after a thousand years of cultivation. It is from these successes that we can obtain reassurance of the soundness of our own conservation program.

There is a farmer near Kobarid who was born and has lived in the same house all his life. When he was born the land was part of Austria. From 1918 until 1945 it was Italian. Now it belongs to Yugoslavia.

The land has been part of three different nations within the last 35 years, and since the time of Caesar it has changed hands perhaps, 50 times. But from a conservation standpoint, sovereignty has always remained with the Lord.



**CONSERVATION IN AFRICA.**—Time spent by Allen T. Knight, of Canada, studying soil conservation in the South-eastern region in 1945, before he went to Angola, Portuguese West Africa, for the United Church of Canada, is paying big dividends in his mission field.

Knight, a trained agricultural chemist, returned to Spartanburg, S. C., for a two-weeks' "refresher course" in February 1952, while on sabbatical leave. He discussed his work and showed colored slides before a meeting of employees of the Soil Conservation Service.

In a recent letter Knight wrote:

"I suppose it was the village trip of last weekend with Dr. Sid Gilchrist (medical missionary) that brings to mind friends of the Southern States. It was quite an historical village trip. It marked the first time that a village has sent someone to us to ask help in their problem of saving the soil. All previous visits to villages have been made with somewhat the idea of getting the people concerned about soil conservation—this, however, was an actual invitation.

"Deacon Jacinto arrived out in our beautifully terraced fields one Monday morning—fields which he knew better than I—fields which were so poor in 1946 that we could produce nothing better than 40-inch corn plants—a yield of perhaps ¼-ton of corn to the acre. The same field will produce 5 times that yield this year and a crop of velvet beans as well. Would we go out to their village, about 30 miles away, and show them how to save their village?

"Sid loaded up the two-wheel trailer with dispensary, laboratory, examining table, etc. I loaded up the covered wagon with mouldboard plough, disc plough, levels, velvet bean seed, soya bean seed, and two of my African teachers who are also practical farmers.

"Friday night we put on a show using our new projection equipment—public health films and nutrition, agriculture. They sat for 3 hours and even at the end of it, little lads of 10 were wide awake and begged to see some more pictures or even the same ones over again. I don't know how much they got, but even if they picked up 10 percent, it was worth while.

"Of course, there was the temptation to take along the new diesel tractor and our new disc tiller furnished to us by a group of farmers of Alberta. But someone had told me in 1945 that it is good policy to help people to help themselves. To attempt to do everything for people just doesn't work. There were 16 oxen promised for the Saturday—they began to appear at 9 a.m. and since most of them had never worked together, it took time to get the chains strengthened—one new ox insisted on running away just as the yoke was about to be fastened. How many times have I had to remind myself that this is Africa and consequently be patient. About every 100 feet, one or more of the oxen decided to get tangled up in the chains, each stop necessitating at least 5 minutes. We succeeded in finishing off two terraces, marked out another four with instructions as to how they were to be made, did the first work in building three ditches to take the flood water away from the village.

"This village was established in 1930. In 22 years, many of the fields have been denuded of the entire layer of top-

soil. Already there is a considerable migration away from the area because of land hunger. The local nurse is saving most of the children, which means that there are more mouths to be fed.

"I laid down the law to them on Sunday morning in church—perhaps it would be more appropriate to say that I warned them. I know a similar area where in 1920 there were 100 houses in a village—now there are 8; and the reason—soil erosion and a one-crop corn economy.

"This year there is hope of our producing at least enough soya beans for the sick people at the hospital and for one meal a day for our students. The explanation—the arrival of the "Big Red Ox," our diesel tractor. Now, everyone wants to learn to drive the tractor. The second class of students specializing in shopwork goes out next week—one of them stays with us to take over tractor maintenance and driving."

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**MEETING PLACES SHIFT.**—Supervisors of the Riley County, Kans., Soil Conservation District hold their monthly meetings in various country schools and invite the people to come.

The program is kept informal. After the regular business session, one of the supervisors talks about some phase of the soil conservation district, and the work unit conservationist discusses some of the community's conservation problems. Usually, colored slides are shown. Both men and women are encouraged to ask questions. Women are among the best conservationists.

Arrangements are made by cooperators. Usually the cooperator publicizes the meeting through the local PTA. Attendance has been good. Somebody always shows up with a coffee pot and cake or cookies.

The result has been better understanding by the people of soil conservation districts, better conservation farmers, and the satisfaction the supervisors get from giving better service to communities.

—B. K. GERAGHSY.

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**FRIENDLY POND.**—When Roland Avery, of the Middlesex County (Mass.) Soil Conservation District got tired of lugging water from his household supply to his dozen head of thirsty beef cattle, SCS technician Carol O. Clark told him that the best site for a stock water pond would be astride the line between his farm and that of his neighbor, Arthur Fitz.

Fitz didn't have livestock, but he wanted to keep up to 20 beef animals or about 100 sheep, and also have a recreation spot. So the two friends got together and shared the cost of building the pond across their dividing line. It has a one-fourth acre surface and the water usually is 8 feet deep.

Since then, Fitz has built another pond, with an average water depth of only 2 feet, so that children can have a safe place to skate.

A contractor built both ponds for less than \$500.





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**WELLINGTON BRINK**  
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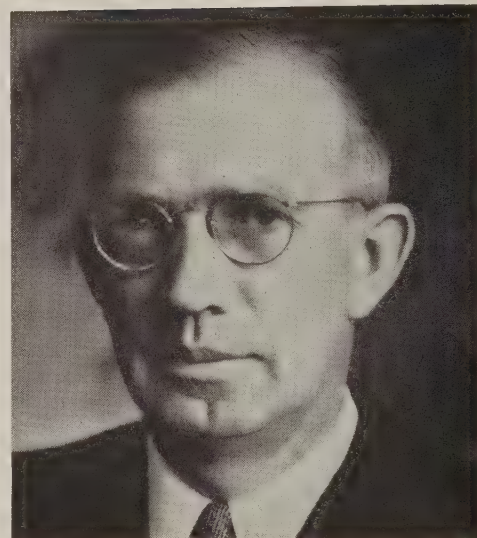
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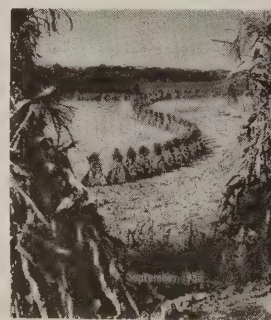
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### JOHN DEERE MEDAL TO ISRAELSON.

To honor outstanding engineering achievement in the field of agriculture, the American Society of Agricultural Engineers has awarded the John Deere Gold Medal to Dr. Orson W. Israelson, Logan, Utah. This medalist was selected by a jury of awards consisting of the seven immediate past-presidents of the Society, and the medal was formally presented by ASAE President Ivan D. Wood of Denver, Colorado.

One of the world's highest authorities on water in dry regions, an author of renown in his field, the holder of many other honors, Dr. Israelson has been associated with the Soil Conservation Service as a collaborator.



**FRONT COVER.**—Corn planted and harvested along contour lines, Muskingum County, Ohio. George Pace was the photographer.

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# Little Forests of the Plains

*After 15 years the shelterbelts are proving their worth by protecting soil, crops and people from the destructive fury of the winds.*

By ELMER L. WORTHINGTON



Cross-country view of part of the shelterbelt plantings near Park River, N. Dak., fall of 1952. Those in foreground are on the Elmer Staven place.

PARK RIVER, in northeastern North Dakota, has an unusual distinction. It is completely surrounded with man-planted field windbreaks, or shelterbelts, believed to be the most intensive system of tree belts to be found in the Northern Great Plains.

When the winter "stove leagues" gather in this up-to-date town of 2,000, only 35 miles south of the Canadian line, the old-timers notice the change. It is not so windy as it used to be. Although the

trees were planted primarily to help protect farm land from wind erosion, and to prevent snow from blowing, they also benefit Park River.

Planting of the shelterbelts began in 1936 as part of an SCS demonstration project. Now they are veritable little forests against the winds. The faster-growing species are now from 40 to 60 feet tall. Slower-growing species have done proportionately well. When they were planted, they were only little whips that seemed pathetically small in their surroundings.

I had a hand, as forestry specialist, in starting

NOTE.—The author is nursery manager, Soil Conservation Service, Mandan, N. D.



those tree plantings. Then I was transferred to another post. Only recently did I have the opportunity to see those plantings again, after a lapse of nearly 15 years.

Clinton Lewis of the Clinton and Albert Lewis farm, close to Park River, sums up results this way: "You bet the trees have helped. It's hard to tell where the farm would be today if it hadn't been for them, together with other wind erosion control measures."

He added that the tree protection has also helped his farm production—a statement that finds widespread agreement among farmers.

The Park River project was set up by the Soil Conservation Service as a general erosion-control demonstration for an extensive area. In its 51,000 acres were included some of the rich, nearly level land in the bed of glacial Lake Agassiz through which the Red River of the North now flows, sandy

beach lands along the old lake, and some upland covered by glacial drift.

The seriousness of the wind erosion in this area, particularly on the sandier beach lands, led to the proposal to plant trees in belts along section lines and quarter-section lines; that is, a half mile apart.

Altogether, during the 5 years of the project's operation (1935-1939 inc.), 131 miles of shelterbelts, totaling 1,576 acres, were planted. This took 1,425,000 trees, mostly supplied by the Service nurseries. Most of the project's tree plantings were made in 1936 and 1937, and they were most heavily concentrated in an area extending just north, south and west of Park River.

Some of the shelterbelts are 10 rows wide, some narrower. All have similar characteristics—low-growing shrub rows on each side, fast-growing trees in the interior that are flanked by slower-growing longer-lived species. Cottonwood and Chi-



The author measures a tree in the Staven shelterbelts. Trunk diameter was more than 14 inches at breast height; estimated height, 60 feet.



nese elm were the fast-growing species; boxelder, green ash and American elm, the slower-growing species, and Caragana, honeysuckle, lilac, willows, chokeberry and plum the shrubs.

Planting the trees did not end soil blowing immediately, of course. Often, during 1936, dust storms made it necessary for Park River to keep its street lights burning for 2 or 3 days at a time. Without them, visibility was so low that a person across the street could not be recognized.

It was the tree planters themselves who first remarked that it would be nice to come back to see this area 10 to 15 years later. Many are still there, farming the same land, prosperous, and with new homes or the old homes remodeled to meet city standards.

A mile and a half of trees were planted on the 320-acre previously mentioned Lewis farm. This farm had suffered severely from wind erosion. There was danger that most of its good land would be lost if the shelterbelts and other conservation practices used with them did not succeed. But they did succeed.

I asked Clinton Lewis if he figures that the cultivation and protection needed by the shelterbelts had been worth the chips.

"Why," he replied, "the cultivation and other work the trees needed during those first 3 or 4 years was nothing compared with the benefits I have received already and expect to receive over the next 50 years."

The Lewis brothers had a good chance to check wheat yields in 1952, when they farmed some land without shelterbelt protection as well as their own protected land. By elevator tally, their yield was 38 bushels of Mida wheat per acre of land adjacent to shelterbelts and only 25 bushels per acre on the field not so protected.

The difference, resulted partly from protection given to growing crops and partly from conservation of moisture. During winter, the tree belts did much to hold the snow on the land. In earlier years, some of the snow had been piled in big drifts around the buildings and some had been blown away.

"These trees have really helped to protect the land, but one cannot rely on them alone," the Lewises remark. "We feel that we must use other conservation practices, such as strip cropping and



**May 1936: a demonstration shelterbelt soon after planting.**



**August 1947: the same shelterbelt, a little over 11 years old. The trees are from 10 to 35 feet tall.**

stubble-mulch tillage, along with shelterbelts to be wholly safe from wind erosion."

Elmer Staven, whose farm joins the Lewis place, has 480 acres which are protected by  $2\frac{3}{4}$  miles of shelterbelts. He says his land is worth 2 to 3 thousand dollars more per quarter-section with the trees than without them.

"Yields always have been better in a strip 15 to 20 rods wide, where they are protected from the winds during the growing season," Staven said.

"But, there's another side to the story.

"Years ago we would take friends who came to visit us from the east along the river road where the native timber grows. But no longer; our own area is beautiful. And for years we have gathered all the wild fruit we could use from the belts and have had lots of fruit for our friends. The shelterbelts also serve as runways and hiding places for deer, and pheasants winter in them."

Ole Thompson, who lives about 3 miles from the Stavens, said he has noticed that deer live in his shelterbelt year-round. In fact, he said, the does seem to prefer the shelterbelt to the native timber along the river as a place to have their young.





Clinton Lewis and son beside one of their shelterbelts.

But the end is not yet. The project area is now part of the Walsh County Soil Conservation District. Cooperators with the district, with the technical aid of the SCS, are planting trees at the rate of one hundred to one hundred and twenty-five thousand a year, and the farmers are buying most of the seedlings themselves. The Service supplies only some of the shrubs and conifers, and the planting is done with tree planting machines instead of by hand, as in the project days.

Fred Hulstrand, former Park River mayor, sums

it up for the townspeople: "This tree planting has been the greatest thing that our section of the country has done."

Palmer Levin, chairman of the soil conservation district board of supervisors for many years, voices feelings of farmers: "Planting shelterbelts was one of the finest things that the Soil Conservation Service did on the demonstration project to control wind erosion and snow drifting, provide wildlife habitat, and beautify the country."

The shelterbelts stirred the farmers' imagination, and present rates of planting give promise that ultimately the whole soil conservation district will have as great an array of trees.

These early tree planters—cooperators with the Park River Demonstration Project—have a word of caution, however. They remind us that tree belts require some continuing care and protection. To keep grasses from invading them, it is necessary to have the shelterbelts protected by a clean, cultivated strip on both sides and the ends. This is also a guard against fire. And they must be withheld from grazing animals, for grazing can rapidly destroy the trees' effectiveness by browsing the branches and trampling and compacting the soil. A good shelterbelt makes a poor pasture; if pastured, it soon becomes a poor shelterbelt.

## Conservation on Thirty-second Street

HERE'S what 37 young gully-fighters did with a few lunchbag-loads of topsoil, some garden tools and the enthusiasm 4th graders radiate. Mrs. Bertha Klein, teacher at Montebello School in Baltimore, Md., says the idea was entirely theirs. The idea: put a liberal treatment of soil conservation on the sloping grounds at the corner of Thirty-Second Street and Harford Road.

Strange new words like erosion, contours, and watersheds were engaging, but not like baseball, ice-cream, and recess-time. They were vague and sort of far-off, like the farms they read about in the conservation books. Their mental lights blinked on, though, when the youngsters saw pictures of green fields and forests, and also torn hillsides and mud-choked streams. Erosion, yes, that's the word—erosion was right outside the classroom windows, they told Mrs. Klein. Rills deep enough to

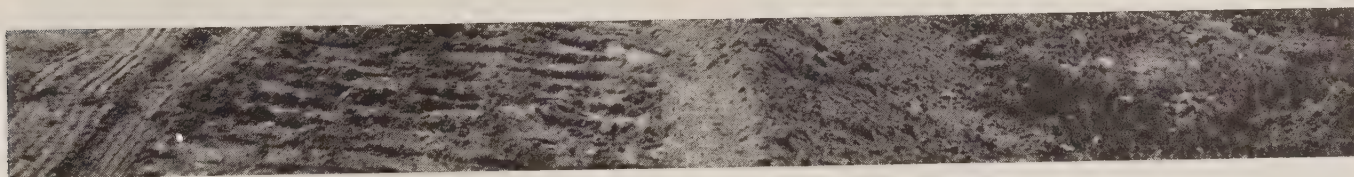
lose a bag of marbles, cracked down across the playground.

Naturally, they wanted to do something about it, and, as far as Montebello's principal, Miss Evelyn Girardin, was concerned, this was the best possible way to learn.

And that's how parents got used to handing Dick Stramek and Judy Hodges and all the other kids a rake, hoe or cultivator and a bagful of topsoil, along with their lunchboxes, as they headed for class a good many mornings that spring. And that's how the ugly rills got erased from the school-grounds. The kids filled them in, worked up beds and seeded them down to good grasses and legumes. When a big gully in a steep pathway stumped them, they took it to the student council and the council sent a recommendation to the city's Department of Education. As a result, the pathway will be stabilized with hedges this fall.



# Trouble Came with the Water



The ditch under construction. It is 9,250 feet long.

*This Montana farmer sought and found a better supply.*

By HAROLD J. SWAN

THE WATER came over the mountain and onto the rancher's land—and it brought things the rancher did not want. Here is a first-class illustration of the fact that conservation problems are not always born on the farms and ranches themselves.

The rancher in the case is Weldon Higham, in the Carbon County (Mont.) Soil Conservation District. He owns a 5,300-acre sheep ranch, part of which was homesteaded by his father.

"My problems," says Higham, "were caused by an irrigation supply that is unsatisfactory for this ranch. And the solution is to develop a completely new source of water—from the Clarks Fork of the Yellowstone. I had thought about this source for several years, but it took reliable technical advice to show me just what to do."

Irrigation first came to the ranch in 1895, when a canal was built on the divide between Red Lodge and the mining community of Bear Creek. Water was taken from Rock creek on the Red Lodge side and delivered to a natural waterway that passes through Bear Creek. Into the latter coal-mine tailings are dumped.

The steep slope, dropping 1,000 feet from the top of the divide to the stream below, not far from the Higham ranch, spelled trouble. The water's velocity was enough to pick up much silt and debris. By the time it reached Higham's land it was still well loaded with silt, mine tailings, and even pieces of coal up to 2 inches in diameter.

"The silt and mine tailings gave me lots of trouble," Higham explains. "Naturally, I had to run the water more slowly through the ditches. That caused it to drop part of its load. I have had to shut off the water right during an irrigation and clean the ditches.

"Even when it is spread out over the field, the water carries troublesome amounts of silt. This builds up on the land seeded to permanent-type vegetation, principally alfalfa, so that the cost of releveling becomes almost prohibitive. I've had to spend as much as \$500 releveling 40 acres so that I could water it efficiently. This had to be done every few years—every time I broke out hay or pasture land in line with the rotation of grass and legumes. Besides that, the material brought by the water was of poor quality."

Higham's troubles also included the fact that he

Note.—The author is in the information division, Soil Conservation Service, Lincoln, Nebr.



frequently needed irrigation water earlier than he could get it, that the water passed through a weed-infested gulch, that ditch maintenance was expensive, and that the water supply was insufficient.

Higham's new irrigation setup is part of a complete conservation plan now being developed with the help of Soil Conservation Service technicians assigned to the soil conservation district.

It was found that the Clark Fork could be tapped. The decision to do so was made after all other possibilities had been examined. One of the simplest solutions would have been to hook onto the Grove Creek canal several miles distant—even though it would have meant tunneling 850 feet through rock. But the ditch owners were unwilling to add to their numbers. A silt trip, proposed some years earlier,

was also considered and abandoned because the water supply was not sufficient.

Technicians selected the proper location for a pump station in the Clark Fork River, determined the size and type of pump needed, and designed the 9,250-foot supply ditch to carry the water to the irrigated land. A little more than half of the supply ditch was excavated, and the rest is on a dike built across a low area. Construction was done in 1952 by private contract.

Besides providing a source of clear water, the new irrigation layout will boost Higham's irrigated area from 390 to 430 acres.

For the time being, this rancher plans to keep on using water from his old supply, principally to fill in the part of the low area that is on the up-slope



No spoil-bank leveling needed here. The excavated dirt was loaded on dump trucks and transported to the place where a dike had to be built across a low place. The ditch was built on the dike.





**This shows the kind of country through which the new irrigation ditch had to be built. Here the dragline is operating around the nose of a hill.**

side of the dike. He intends to build small dikes at right angles to the ditch dike, thus creating small settling basins. Then, when the water has dropped

its load of silt and mine tailings, it will be let into the ditch.

The silt and mine tailings are poor soil material of course, but Higham believes that he can help matters by the application of large quantities of sheep manure. In addition, he will smooth up what is now a rather unsightly bank.

"Sure, this is expensive," Higham agrees. "The total will be about \$35 per irrigated acre. But when I compare this with what it cost to relevel fields periodically, and other disadvantages, I think it represents a saving.

"Further, I'll have clear water. The land will not be covered with material of low fertility any more. That will permit me to go about the job of really building up soil fertility and controlling weeds."

## Where Every \$ Grows on a Farm

By JAMES B. McBRIDE

GREER COUNTY is a relatively small agricultural county in southwestern Oklahoma. It has a total area of about 408,000 acres, nearly 95 percent of which is in farms. Aside from a small brick plant and a small granite quarry, no industries exist except those that depend directly on agriculture. More than 99 percent of all wealth that comes to the county is from the sale of agricultural commodities, mainly cotton, wheat, cattle, and other livestock products. The county's population has been declining for the last two decades. In 1930 the population was more than twenty thousand; by 1940 it had shrunk to less than fifteen thousand; and in 1950 it was less than twelve thousand. Nearly all the decline came from the farms. Urban population remained about the same during this 20-year period.

Most of the crop land and some of the grazing land has suffered moderate to severe erosion since the area was settled some 50 years ago. Productivity of the soil on most farms has been gradually declining, especially during the last 25 years. This

loss of productivity has been partially responsible for the exodus of farm families.

By January 1953 the supervisors of the Greer County Soil Conservation District had become alarmed about the continuing decline in the number of farm families. Recalling experiences of the thirties, they began a study of present conditions. They used the 1950 Agricultural Census and information from a survey of 26 southwestern Oklahoma counties made by the Public Service Company of Oklahoma as their main guides.

This study revealed that there are a total of 217 retail businesses in Greer County. The total population of the county is 11,749. Dividing the population figure by the number of businesses gives 54, the number of persons available to support each retail business. Since the county has an average of 3.16 persons per family, this means that there are about 17 families for each retail business.

The 1950 Agricultural Census reports that farmers received \$7,303,885 from the sale of farm products in 1949. This is equivalent to \$622 for each man, woman, and child in the county, or \$1,966 for each family. A small income to the county results

NOTE.—The author is work unit conservationist, Soil Conservation Service, Mangum, Okla.



from the processing of farm products, but it amounts to less than 5 percent of total income. Thus, the business potential averaged about \$33,000 per business establishment per year. The average take of the businessmen was about 30 percent, or \$10,000. From this sum each businessman had to pay salaries, and all other business expenses. Obviously, if the farm income shrinks much further the average businessman cannot operate, unless some unforeseen source of wealth is discovered.

In view of the facts cited above, the supervisors concluded that the businessmen of Greer County could and should be made to understand that their stake in the land is almost as vital as that of the farmers and ranchers. They thought it essential to create a "spirit of conservation" among the businessmen, to show them that their only real hope of business expansion lay in farmers and ranchers increasing their production per acre. They set out to create this spirit of conservation by acquainting the businessmen with these facts, and by showing them that the only practical way to increase per acre production is through the use of better conservation farming and ranching methods.

If the trend of the last 20 years continues, the picture will be dark, not only for farming but also for business. The average size of farm units in the county has been increasing as more and more farm families leave the county to seek employment elsewhere. But the production per acre has not been increasing; it has been going down where proper conservation practices are not used. Furthermore, the total actual income to the county has been falling away.

A recent survey of land use in Greer County shows the following:

Now in cropland .....	250,588 acres
Now in grassland .....	140,570 acres

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Total .....	391,158 acres
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But—a study of land capabilities and conservation needs recently completed by the Soil Conservation Service reveals that, for proper land use, the figures should read this way:

Cropland .....	217,734 acres
Grassland .....	173,424 acres

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Total .....	391,158 acres
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In other words, 32,854 acres of present cropland ought to be seeded to native grasses. This is the

equivalent of 110 farms of 300 acres each. The conversions needed no doubt would lead to many of the 110 farm families now on this land leaving the county. When 100 farm families leave, 5 or 6 business houses will suffer and most of them will close. The only alternative is to adopt the sort of farming and ranching methods which will increase the yield per acre. In the main, that means the use of soil and water conservation methods.

This is the story that the supervisors of the Greer County Soil Conservation District are trying to get over to the businessmen of the county. They hope that these businessmen will then help stimulate more interest among the farmers and ranchers and perhaps even assist, to a limited extent, in financing some of the vital activities of the district.

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**BURNING ISSUE.**—Technicians and district farmers in Kentucky have found that it's an ill wind that blows nobody good.

During the disastrous fire season resulting from the severe drought last summer, SCS workers and district supervisors, along with representatives of other agencies, took an active part in promoting better fire protection. In some areas, the district supervisors were deputized as temporary assistant fire wardens to help with fire fighting activities.

As a result of these activities, Estill, Nelson, and Fleming Counties have voted legal fire protection and similar moves are under consideration by fiscal courts in a number of other counties. In addition, a lot of local fire-protection units have been organized and the supervisors have stimulated local landowners to take additional measures for fire protection on their own lands.

Another interesting development has been the quickened interest in woodland plantings, which showed an increase of more than 2 million trees planned for farms of district cooperators during the next planting season.

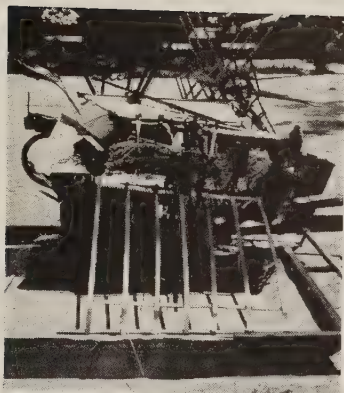
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**LAND USE WEEK.**—Just about everybody got in the act during Land Use Emphasis Week in Mississippi. Sponsoring agencies included soil conservation district commissioners, county agricultural workers coordinating councils, civic clubs, community clubs, chambers of commerce, the Delta Council, home demonstration councils and clubs, Farm Bureau groups, individual agricultural agencies, and industrial groups.

Negroes participated in 42 work units, and women's groups in 71.

Results are indicated in this summary: Number of organization meetings, 203; conservation talks to organized groups, 852; conservation tours (attendance, 3,304), 53; conservation news articles published, 512; conservation pictures published, 260; conservation films shown (attendance 30,000), 394; conservation advertisements published, 171; conservation displays used, 130; conservation sermons preached, 434; conservation radio programs and announcements, 106.





Sled used to catch seed shattered by binder.

# Harvesting Certified Seed

By ROY E. BALLARD

THE clear meaning of conservation can be gained by a trip to the Grand Oaks ranch in the Tehachapi (Calif.) Soil Conservation District. Owner Don Carroll, like other local ranchers, had his problems. One of them was the low organic content of the soil. The top soil was being raided by water and wind erosion. Realizing that this trend must be checked, and promptly, Don decided to try to supply organic matter as a way to check such losses.

Note.—The author is work unit conservationist, Tehachapi, California.

Don's first undertaking was the production of certified seed. Atlantic and ranger alfalfa, Akaroa orchardgrass, and Goar's tall fescue would provide organic matter and vegetative cover.

What particularly irked Don was the large loss of certified seed incurred by applying standard methods of harvesting. Appreciating that it was just as essential to save the crop after it was produced as it was to conserve the soil on which the crop was grown, he determined to do something constructive.

He made a number of adjustments on his 10-foot grain binder. A pan made of  $\frac{1}{4}$ -inch metal, 45

(Continued on page 42)



Cutting Akaroa orchardgrass.







**L**AND judging—newest of judging contests—has come into its own, and is sweeping the nation.

Land judging contests usually follow land appreciation schools and show the degree of understanding contestants have of the assets and liabilities of land and their knowledge of treatments needed for its protection and improvement. Participants are taught that soil depth, texture, permeability, slope and other factors determine the capability class of the land, and that this classification is the key to using and treating the land properly.

Note: The author is extension soil conservationist, Oklahoma A. & M. College, Stillwater, Okla.

# Do You Know Your Land?

By EDD ROBERTS

*A new sort of contest is spreading rapidly because it sharpens the understanding of the soil, how it should be treated and used for full and continued production.*



Here are some of the farmers in the adult division.



Members of the Tulsa Farm Club attending training school and judging contest.



Represented were India, Belgium, Colombia, Italy, Brazil, Greece, and Yugoslavia. Prof. Fenton Gray is holding shovel. Back of him, with suspenders, is Professor Baeyens of Belgium. The two men feeling soil samples are P. de Suca and Guida F. Laure, both of Italy.

← In the picture at left are County Agent Bob Sheets, of Guymon, Okla., and his up-and-coming 4-H Club Team: Peggy Ann Matter, Dean Gribble, and Joan Mires.



Score cards guide the judge by setting forth the factors and treatments in much the same way as in livestock or grain crops judging. His proficiency in judgments shows how far along he is on the road to becoming a conservationist—able to understand and use scientific information in his land management.

The Second National Land Judging Contest was held at Oklahoma City, April 30 and May 1. To it came 1,500 people from 14 states: New Mexico, Nebraska, West Virginia, Kansas, Missouri, Ohio, Illinois, Indiana, Iowa, New York, Florida, Arkansas, Texas and Oklahoma. There were 812 competitors for the \$1,000 in cash prizes, plaques, medals and merchandise given by WKY-TV farm radio department of Oklahoma City, the sponsors. Sandy Saunders and Harold Dedrick are the station's farm radio directors.

In the contest were 93 FFA teams from 11 states, 80 4-H teams from 6 states, 5 college teams from 2 states, and more than 100 adults from 9 states. A farmer, Sidney Spore of Kildare, Okla., placed first in the adult division. The Buffalo, Okla., FFA team was first in its department; the 4-H team from Washington County, Okla., led in the 4-H section; and the Oklahoma A. & M. College team was first in the collegiate division. The home folks made off with the laurels in this case, a fact that is serving as a challenge to the rest of the nation, where the land judging idea is catching on rapidly. Even the women are beginning to take a hand, 20 having participated in the 1953 event.

Officials of WKY and WKY-TV have announced that the Third National Land Judging Contest will be held at Oklahoma City in 1954 around May 1.

The idea had its inception at the Red Plains Conservation Experiment Station at Guthrie, Okla., with 4-H soil conservation contests in 1941. Harley Daniel, project supervisor, spent considerable time digging up fundamental research information as a basis for this method of teaching soil conservation. By 1946 the contest was carried out to the field in a big way, starting at Pauls Valley, Okla., under the wing of county agent Alton Perry and district conservationist Sam Lowe. I myself have personally supervised 289 Land Appreciation Training Schools and Judging Contests. Louis Derr, SCS soil scientist, has had a guiding hand in developing the official score card.

Land judging now has spread to some 30 other states. There has been a lively quest for information from all parts of this country and from abroad. To Oklahoma for study of the land judging contest idea have come visitors from Puerto Rico, Turkey, Israel, Portugal, Island of Cypress, Thailand, Burma, China, India, Italy, Belgium, Colombia, Brazil, Greece and Yugoslavia. Agricultural colleges are beginning to adopt the contest in their teaching. Dr. H. F. Murphy, Dr. Fenton Gray, Dr. Charles Sarthou and their associates

conducted the first college land judging contest in America at the A. & M. College at Stillwater, Okla.

Representatives of 12 southern states met at Mississippi State College last July to study this work. At least 10 states have adopted a score card. All are alike in principle. Six or seven items, such as those pertaining to texture of topsoil, permeability of subsoil, depth, slope, erosion, drainage and land capability class are found on all score cards.

Many people have been instrumental in putting the mechanism together that goes to make land judging contests successful. W. R. Tascher, extension soil conservationist of Washington, has perhaps made the biggest contribution in spreading the method from state to state.

Comments on this sort of educational work are interesting. For instance, Mrs. Louise Folk, a farm woman near Yukon, Okla. when asked the reason for her interest, said: "I have one son and 400 acres of land. My boy takes part in 4-H and judging contests, and my income is derived from land. Naturally, I'm interested in land judging."

Paul Haines, extension soil conservationist of Texas, claims, "It is the greatest teaching device ever designed. We are using it all over the state of Texas." He is supported in his view by Shawnee Brown, Oklahoma Director of Extension; Ira Hollar, State 4-H Club leader of Oklahoma; Elmo Bauman, soil scientist of the Soil Conservation Service, and John Meyers, chairman of the board of supervisors of the Logan County Soil Conservation District.

L. G. Monthey, executive secretary of the American Society of Agronomy, makes the additional point that "It may be applied in any state in the Union."

Dr. Horace Harper, director of the Noble Foundation, thinks that contests of this kind are very valuable in teaching soil management.

Farm women have accepted the land judging contests as a plain "down-to-earth" way to learn firsthand about soils and how to care for land. Mrs. Eula Barker of southern Oklahoma coached the Jefferson County 4-H Land Judging Team. She herself also placed second in the adult division of the Southern Oklahoma District Land Judging Contest sponsored by the Samuel Roberts Noble Foundation. She thinks a special division ought to be set up for women.

Miss Norma Brumbaugh, State home demonstration agent of Oklahoma, has been a great leader in formulating plans for women to study soil conservation in Oklahoma. Her conviction is that better homes, greater family incomes and more healthful and nutritious food will result from soil conservation education of women's groups. In addition, she is conscious of the vast influence which women can exert in leading boys and girls in their responsibility for conserving our natural resources.

Civic groups, agricultural organizations, banks, and board of supervisors of soil conservation dis-



Standing, at left, is Sandy Saunders, farm director of WKY and WKY-TV. The others are Extension soil conservationists: kneeling—W. R. Tascher, Washington, D. C.; Edd Roberts, Oklahoma; P. G. Haines, Texas; standing—Saunders; Evan Hartman, Nebraska; George Sharpe, West Virginia; R. C. Lind, Kansas; and L. C. Brown, New Mexico.

districts are sponsoring land judging contests in many parts of the country. The Tulsa Farm Club and the Tulsa Chamber of Commerce now sponsor an annual Northeast Oklahoma 4-H and FFA Land Judging Contest. A special day was arranged this year for members of the Tulsa Farm Club, an exclusive membership of wealthy business people, landowners, and men and women in the oil industry. About one-third of the participants in this event were women.

The Bank of Woodward, sponsored a 5-county contest last April for 6 groups: 4-H and FFA members, women, men, GIs and high school girls. Authorities of the bank believe educational events of this kind will improve the agricultural industry and help to teach people to conserve soil.

Many boards of supervisors of soil conservation districts are sponsors. The board at Hobart, Okla., gave plaques costing \$25 to the highest scoring 4-H team and FFA team. This contest was directed by Tom Morris, county agent of Kiowa County, in cooperation with all local agricultural agencies.

The Carter County Soil Conservation District Board, with headquarters at Ardmore, Okla., paid the expenses of the 4-H and FFA contestants to the Second National Land Judging Contest.

A recent survey of all 48 states reveals activity everywhere. Sample excerpts from the reports:

**Minnesota.**—"We have held land judging schools in over half our counties. In September we are holding a state-wide contest."

**Michigan.**—"Land judging has been going on here about 4 years."

**Kansas.**—"We have just completed a land judging bulletin. Tentative plans are under way to conduct a state contest."

**New York.**—"A score card and literature will be prepared in July. We will get going on land judging in the fall."

**Maryland.**—"We plan to start land judging this summer in one or two counties."

**West Virginia.**—"A bulletin has just been completed and we have started the land judging work."

**Virginia.**—"Land judging has been conducted in about one-fourth of the state and we plan to double this coverage this year."

**Nebraska.**—"Plans are to train 12 county agents in land judging during the last half of 1953."

**Colorado.**—"We have one place where land judging may be started this year."

## Monocacy Improves

A NOTICEABLE improvement in fishing since soil conservation came to Monocacy River valley has been observed by Benjamin F. Phebus, regional game warden at Frederick, Md. This veteran of the State Department of Game and Inland Fish is quoted as telling sportsmen: "If good land use continues to make progress, our rivers and streams will come back as good fishing grounds in the not very distant future."

Phebus has been observing the Monocacy for most of his 68 years. He finds less mud and silt pollution, now that farmers are cultivating on the contour, and encouraging protective vegetation on streambanks and other critical areas. Water clears up much faster after a rain, he says, and signs of better fishing conditions are increasing.

The Monocacy's 970-square-mile watershed lies across three soil conservation districts. The stream rises not far from the famous Civil War battlefield at Gettysburg in Adams County, Pa., and flows southeastward through Carroll and Frederick Counties, Md., joining the main Potomac River near the town of Dickerson. A few tributaries, such as Friends Creek, were once good trout waters.

**CHURCH-FARM PARTNERSHIP.**—Technicians assigned to the Lawrence (Ill.) Soil Conservation District are working with a group of farmers which operates an 80-acre farm for a church. The church rents the farm from a district cooperator. The church members do the work and their half of the crops goes to the church. This will give the members who are not already cooperators a chance to try conservation farming before they have a plan on their own farms.





One of the huge glacial boulders being removed from mowing field.

## Remade Farm

By ARTHUR B. BEAUMONT

**T**HAT the glaciated upland soils of New England, molded and processed by nature for forests, can be transformed into some of the most productive grasslands in the world, is being demonstrated on a dairy farm in the Town of Adams, Mass. Situated in the picturesque Berkshires in the shadows of towering Mt. Greylock, this farm is owned and operated by Mr. and Mrs. Walter N. Hadala, with some assistance from high school daughter Doris. From a somewhat "rundown" farm not producing enough forage to feed 11 head of stock to a productive grassland farm carrying 37 head is the accomplishment of this family in a

NOTE.—The author is state conservationist, Soil Conservation Service, Amherst, Mass.

little over 3 years through the application of good soil management practices.

Fortunately for the Hadalas, there came an unusual opportunity to have their land improved quickly and at little cost to them. The farm proved to be just what the Berkshire Soil Conservation District and the county Extension Service were seeking for a demonstration of soil and water conservation practices. Heavy equipment moved in and did in a day jobs which ordinarily would be done by the average farmer over a period of 5 to 10 years, all according to a land use plan developed with assistance from technicians of the Soil Conservation Service. Some 30,000 people attended the demonstration, and probably as many more watched by television.

Pastures thickly studded with stones and large boulders were cleared. Several hundred feet of stonewall were either buried 6 feet deep or hauled away to a ravine. Now these fields are carpeted with grass and farm machinery rolls easily across them. A farm pond of 250,000 gallons capacity was dug near the buildings for use in case of fire and to supply emergency water for the stock. It is used now for recreation and may later be stocked with fish. A diversion terrace was constructed to pick up surface water for the pond.

A multiflora rose hedge was planted to serve as a fence between pasture and mowing, and most of it is now large enough to turn cattle. Some Class I land was cleared for crops, and some trees were planted on land not suited to agriculture. These trees are now knee to hip high.



A happy trio, assisting at time of demonstration: Walter Hadala, Doris Hadala, Alice Hadala.





**The Hadalas here store 250,000 gallons of water for fire protection, stock water, and recreation.**

Aware that natural forest soils cannot be transformed into good croplands without the addition of lime and fertilizer or manure, the Hadalas applied

these in generous amounts before seeding or reseeding. This is why the farm is now able to produce 255 tons of early-cut grass silage and 28 tons of



**Hadala in hay field where a stone wall stood 3 years ago. With field stones and walls removed, modern farm machinery rolls along without interference.**



rowen hay in a droughty season. The hay is used for young stock and to supplement the silage. Says Walter Hadala: "When we were buying both hay and grain we knew we were working for someone else, but now when we can raise roughage like this and buy only grain, we are working part time for ourselves."

In 1949, the year the farm was made over, the herd average was 8,219 pounds of milk with 320 pounds of butter fat. Three years later the herd average was 10,939 pounds of milk and 414 pounds of fat. This was accomplished with more and better roughage, by getting rid of low producers, buying a few better cows, and raising excellent heifers that now lead their herd in production.

The Hadalas plan to continue improving the farm through establishing more conservation practices and growing better grasses and legumes. Many visitors come to take another look at the farm that had its face lifted.

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## HARVESTING CERTIFIED SEED

(Continued from page 35)

inches long, 18 inches wide, 1 inch deep at one end and 5 inches deep at the other, was attached with the shallow end forward in a position to catch any seed dropping through the opening between platform and elevator canvasses. The thickness of the metal in this pan was due to the fact that a standard brace was removed. The pan was bolted on and thereby became an intrinsic part of the binder.

The seed collected by the pan empties into a sled dragged behind the binder. The sled's frame is of 2-inch lumber, 57 inches long, 30 inches wide, and 6 inches deep. The bottom is of 20-gauge metal.

A second sled is placed in such manner as to catch any seed shattered out of the bundles as they are kicked off the binder-head table. It is of 2-inch lumber with a bottom of 20-gauge metal. It is 84 inches long, 72 inches wide, 9 inches deep. It is drawn by a bracket built of 1½-inch pipe, 6 feet long.

Above the second sled are fastened 7 metal straps, each ¼ inch by 1 inch by 56 inches and spaced 7 inches apart. These straps are important. By experimentation they can be bent to the proper contour so as to control correctly the speed of the bundles traveling across them, thus permitting

loose, shattered seed to fall between them into the sled below; also, reducing shock action when the bundles hit the ground.

An added feature is a sheet of 24-gauge metal, 42 inches by 38 inches, cut to fit above the bull wheel. Seeds falling from elevator or binder-head table onto this guard are gathered into the pan at the confluence of the platform and elevator canvasses or into the sled attached under the bundle carrier.

Further, a strip of 24-gauge metal was bent into an angle with wings 1¼ inches by 1½ inches and fastened along the front edge of the binder-head table. This directed seed that might otherwise fall over the front of the binder-head table and be lost, into the sled under the bundle carrier.

The boy riding on the large sled has certain functions to perform. He regulates the speed with which the bundles slide down the metal straps, thereby assuring they will drop gently to the ground with a minimum of seed shattering. He rakes the seed from the stationary pan at the juncture of the platform and elevator, into the small sled dragged behind the binder while the turn is being made at the end of the field.

The power take-off is an invaluable aid. It eliminates the need for an auxiliary motor and enables the operator to keep the binder working even though the bull wheel has stopped. Dense growth of orchardgrass 5½ feet tall is easily harvested.

When the small sled is filled it is emptied into the large sled from which, on becoming full, the collected seed is shoveled onto a canvas placed at a convenient place on the ground.

Don says that the seed thus saved more than paid the bill for binding, windrowing and threshing. He has tried several methods of harvesting the grass seed and this one is the best he has found.

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**"YOUNG" MANAGER USES NEW METHODS.**—Last year's production on Surprise Hill Farm near Fairport, Va., was greater than ever before. The owner, W. T. Covington attributes this to "improving the fertility by use of soil conserving practices." Covington is with the Northern Neck Soil Conservation District. He uses contour strip cropping of alfalfa, row crops, hay, and beans on the long slopes.

"Our manager, N. Y. Thornton is 78 years old, yet he has always been young enough to adapt himself to the new in farm machinery and better farming practices," Covington says.

# "Old Limestone Day"

By ARTHUR W. EMERSON



**In the field: H. S. Blake, at left, president of Capper Publications; H. H. Bennett, at right, veteran former head of Soil Conservation Service.**

(Photo by Capper Publications.)

**M**ORE than 2,500 people gathered at Mankato, Kans., recently to observe a birthday: the twentieth anniversary of the Limestone Creek Soil Conservation Demonstration Project.

Many who cooperated with this project, one of the earliest demonstrations of the modern type of soil and water conservation, were present. So were Dr. H. H. Bennett, former chief of the Soil Conservation Service; Dr. F. L. Duley, first project director, and a number of employees who began their SCS careers here. Operations got under way December 1, 1933.

Great satisfaction was expressed over the fact that so much of that early work endured.

Today all but one county in Kansas, and all of Nebraska, are in soil conservation districts. These two states have 192 soil conservation districts. This is nearly one-twelfth of the national total.

"Old Limestone Day," as the event was tabbed, was the product of the cooperation of the Jewell county soil conservation district, the Capper Pub-

lications, Radio Station WIBW of Topeka, the Mankato Chamber of Commerce, the American Legion, and local newspapers. The county agent and SCS technicians assisted.

Part of the day was spent by the 2,500 visitors on a tour over the old demonstration project, and over a number of farms more recently brought into conservation farming in the district.

Dr. Bennett reviewed the history of the soil conservation movement in the United States, and told of the tremendous progress that has been made on the farms of America.

He told about how the farmers wanted their own organization to do this job. Working together, they brought about enabling legislation in all 48 states and insular possessions of the United States so that they might do this job under their own direction. As a result, more than 2,500 soil conservation districts have been established, covering practically all of the farm land of the nation.

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**MICHIGAN MILEPOST.**—Alumni of the School of Natural Resources and its predecessors, the School of Forestry and Conservation, and the Department of Forestry of the College of Literature, Science and the Arts, will gather at Ann Arbor on October 1, 2, and 3 to celebrate the fiftieth anniversary of professional instruction in forestry and allied natural resource fields at the University of Michigan.

Among the events scheduled are a meeting of the Michigan Foresters' Association on Thursday afternoon, October 1; an informal gathering of alumni and faculty at the Michigan Union, Thursday evening; a formal Convocation, Friday morning; a picnic lunch at Saginaw Forest followed by trips through Saginaw Forest, Stinchfield Woods and the Wood Technology Laboratory, Friday afternoon; a tea for the ladies at the Michigan League Friday afternoon; and a banquet Friday evening. Saturday morning will be given over to more field trips, and in the afternoon the alumni will watch the Michigan-Tulane football game.

Honorary degrees will be conferred at a convocation, which will be presided over by President Hatcher. The main address will be delivered by Dr. R. E. McArdle, chief of the United States Forest Service, and an alumnus of the School.

To commemorate the occasion, there will be published a history of the activities of the university in the teaching of forestry and allied natural resources, commencing with the first forestry instruction by Professor Spalding in the academic year 1881-82 and following through the periods of professional instruction under Professor Filibert Roth and Deans Dana and Fontanna. The publication will also contain an account of accomplishments by alumni in the various resource fields. Copies of the history will be presented to alumni at the reunion and will also be available to those who are not able to attend.

NOTE.—The author is chief, regional information division, Soil Conservation Service, Lincoln, Nebr.



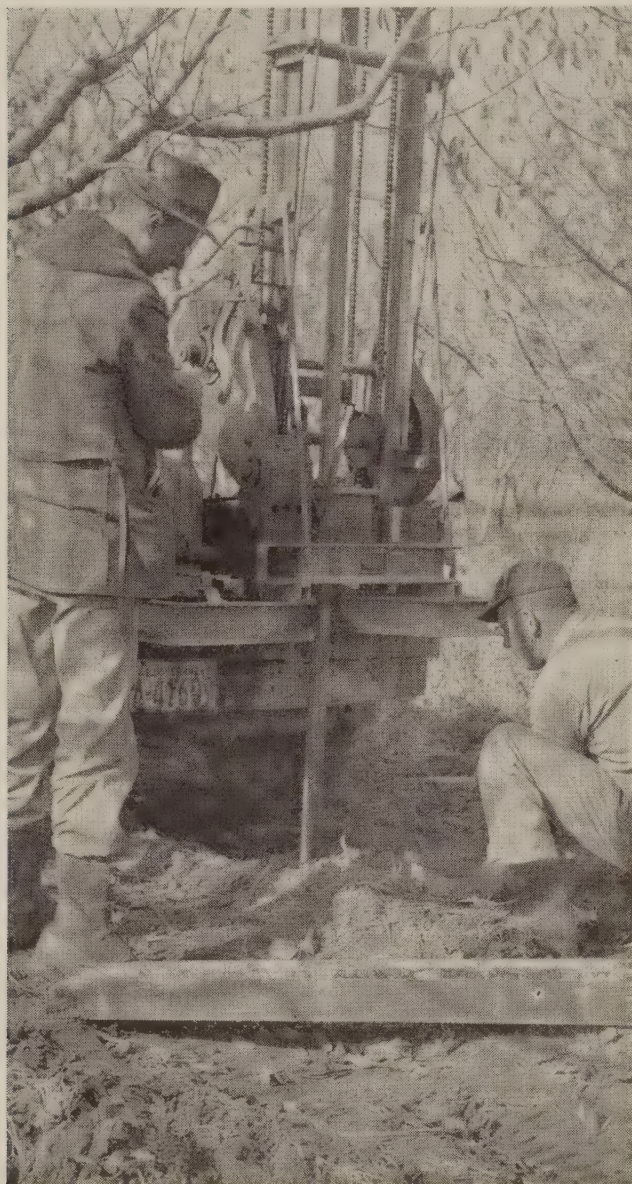
# There's a Right Way to Drain

*To avoid pitfalls and achieve desired results, each drainage system must be planned and installed scientifically.*

By **LOWELL WOODWARD**

**W**ET LANDS are being made profitable in Utah. Drainage is doing it for more than 40 farmers in the Alpine, Nebo and Timpanogos Soil

NOTE.—The author is soil scientist, Soil Conservation Service, Provo, Utah.



Moroni Jensen, a farmer, and Lowell Woodward, soil technician, use an SCS power auger which is greatly expediting investigational work.

Conservation Districts, and within the last 12 months.

Some soils in these districts, lend themselves to drainage, others are questionable. Drainage depends on such things as available outlets for water, kind of soil, and source of the water.

Take the situation of H. C. Miller, who farms near Provo, for instance. Miller's land had a good drainage outlet, but the soil was extremely heavy. A system of drains about 4 feet deep was installed some years ago, but it didn't work well. It carried off a little water, but not enough.

The trouble came from a 3-foot layer of sand under most of Miller's farm at a depth of 6 to 8 feet, which was a carrier of water. An interceptor drain was laid down 7 to 11 feet deep in the layer of sand. It has been very successful, and 10 acres of swamp have been converted to highly productive crop land as a result.

Or, consider the case of Ralph Henderson, who has a 10-acre field near Spanish Fork. A swampy area in the center was becoming larger each year. He decided to quit trying to farm the entire field because it produced nothing but weeds, and his equipment got bogged down frequently. He then learned that the Nebo Soil Conservation District was doing some drainage work, and decided this might be a place to get some help.

Investigation showed, that on the upper part of the field the soil was very sandy down to 6 or 7 feet in depth. It was heavier near the center. Water moved rapidly through the sand, but slowed down and came to the surface when it reached the heavy soil; therefore, the swamp.

A 6-inch drain was installed through the lower edge of the sandy area at a depth of 6 feet. Its upper end was Y-shaped, to increase its intake of water. In a few days the land was dry enough to plow. Today no one would ever imagine that there had ever been a swamp there.

On half of a 40-acre field on the farm of Roy





A 10-acre field on Ralph Henderson's farm near Spanish Fork changed from swamp to good cultivatable land in one month after drainage. The grass sod in center foreground is where the swamp was worst.



Section of main drain on Lyman's farm. A large stream of water was developed in this drain, which is to be tiled.



Lyman, southwest of Payson, there was water at or near the surface. Drainage was a complicated problem. Part of the water came from deep springs, part through a layer of gravel. The gravel was in a layer in the upper part of the field. The water showed up where the gravel layer ended, causing the lower part of the field to be wet. Drains were placed in this layer at the edge of the wet area. These picked up an extremely large amount of water. The springs then were tapped with separate drains, but it is too early to determine their ultimate effect, although indications are that they are going to work very well.

Drainage problems are widely varied and individualistic. They must be individually assessed and solved.

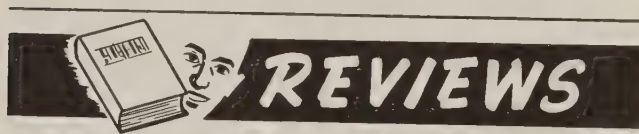
Perry and Duane Harper own adjoining tracts of land at Pleasant Grove. To handle the problem on Duane's land a drain was located almost entirely on Perry's land, where there was a sand layer which was responsible for a wet area downslope.

Drainage problems seldom stop at property lines, and it is usually more economical, and often necessary, that several farmers work together on drainage problems. Land capability surveys often locate high water tables on land which may show no visible signs of need for drainage. But crops yields are poor and often the high water tables bring about trouble from alkali.

Last year, the Soil Conservation Service purchased a power auger for making drainage investigations. This auger, mounted on a jeep, samples the soil to a depth of 12 feet. It is used over the entire state, and it has two major advantages over hand augers: it is much faster, and it makes possible the sampling of gravel and sandy soils, which cannot be done by hand.

This year plans are ready for work on about 40 other Utah County farms.

Drainage will increase production on many farms, but to be effective they must be planned and installed scientifically.



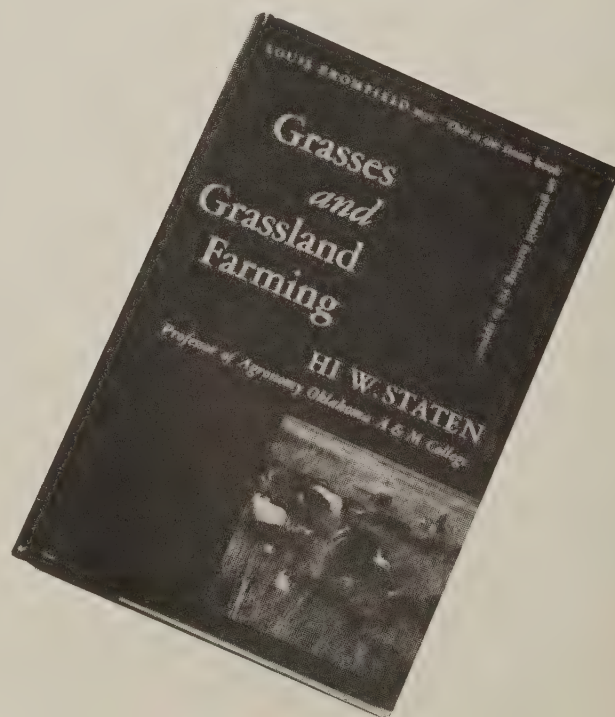
**GRASSES AND GRASSLAND FARMING.**  
**Hi W. Staten, 319 pp. Illus., 1952 New York:**  
**The Devin-Adair Company, \$5.00.**

**H**I W. STATEN, in this book, has presented in an easily readable manner a good over-all picture of the value and importance of grass and its relation to grassland agriculture. Throughout the book will be found not only many practical suggestions as a result of the author's vast fund of information, but also reports of research findings in the many complex problems related to grassland agriculture. The value of grass and pasture, with all its ramifications, is interestingly described as a means of maintaining our greatest natural resource, the land.

The entire field of grassland agriculture is covered in the 17 chapters with such subjects as: establishment and management of pastures; pasture plants of the different regions of the United States; seed production; and grass improvement. A well prepared appendix combines in concise form valu-

able reference material as to the origin, adaptation, and type of growth of many of the more important grasses and legumes.

The author gives considerable attention to the different agricultural practices he has witnessed



over many years and the abuses to our grasslands as a result of plowing, over-grazing, and other forms of mismanagement. An interesting distinction is made in the Great Plains region between "Grass for the prairies," of the tall grass region, and "Grass for the Plains," or so-called short grass region. Pasture calendars are presented for many regions of the United States which illustrate in diagram form the type of pasture plants, season of use, and periods of peak production in developing a season-long or year-long pasture program.

As the title indicates the discussion is directed more specifically to the grasses and their use in grassland farming, with minor attention to the legumes except as they may be used in pasture mixtures. This book should be of concern and importance to the student, farmer, rancher, extension or research worker as a valuable and informative reference book.

—M. A. HEIN

**GOOD IDEA SELLS ITSELF.**—Jim Nedrow, a farmer near Cayuga Lake, N. Y., built two diversions in 1950. His neighbor, Jim Quigley, thought he was trying to impress with fancy farming methods, that there was no need for the "canals." He kept his skeptical eye on the field and was surprised by the amount of water diverted across sloping land.

When another neighbor, Earl Larsen, put in two diversions in 1952, Quigley began to wonder if there might not be something in the idea. When he saw the same results, noticed that Nedrow was working his fields earlier than in previous years and that his crops were more uniform and perhaps even better, Quigley asked the Tompkins County Soil Conservation District to help him do a similar job. It's being done now, and three farmers are keeping their land from moving into Cayuga Lake.

**TOUR FOR WOMEN ONLY.**—At a board meeting in the Ford County, Ill., Soil Conservation District in 1951 the point was raised that a considerable amount of land in the district was owned by women. As a result, 22 women landowners were taken on a tour. Work unit conservationist L. H. Monke obtained the assistance of the farm adviser, the soil conservationist, and Professor Longmire of the University of Illinois.

Many of the women saw a contoured field and a grass waterway for the first time. They also learned the value of a good stand of brome-alfalfa. Interest ran high. One immediate outcome was a rise in requests for assistance. A typically feminine comment was, "I want you to take over my farm and see what you can do with it."

In 1952 the program was continued with additional help from the home adviser and the Extension soil conservationist. A tour "for women only" is on the 1953 activity schedule.

**TAX REVENUES SOAR.**—Soil conservation farmers in the Northwestern Worcester County, (Mass.) Soil Conservation District, are helping the community tax situation. In 1945, three farms in the town of Barre, were assessed \$16,000 and brought \$712.18 in tax revenue to the town. By last year the assessed valuation had arisen to \$27,480 and the tax return had jumped to \$1,545.52, part of the increase being due to a higher tax rate. At the old 1945 rate, however, the tax return would have been \$1,042.12, an increase of almost 50 percent.

Increase in valuation has been due mainly to larger herds, more machinery, and improvements and additions to buildings, *all made possible through better use of land under the farmers' cooperative agreement with the soil conservation district.*

**PONDS PREFERRED.**—Wearied of hauling water for 15 head of dairy cattle, a 6-mile daily trip, during a 2-months' dry spell in each of 4 successive years, Charles Casto, of Putnam County, W. Va., asked the Western Soil Conservation District to help him build a farm pond. He had spent \$100 trying to drill a well and improve springs, to no avail.

Building and fencing the pond, seeding the surroundings, and piping the water 1,000 feet to his dairy barn, cost Casto \$1,050. But it has proved to be an excellent investment. The pond has supplied the herd with water since the spring of 1949. In hauling years, water was dumped into a cistern at the barn, then raised to the livestock. Other water was pumped by hand from wells and carried to the barn in tubs, during seasons when it was not being hauled 6 miles. Around the clock, throughout the year, pond water is refreshing 35 milkers and 25 other head of livestock when these animals are in barn. For drinking water in pastures, Casto has improved 3 ponds, and plans others.

**COTTON CLUB BOOMS.**—Around Altus in southwestern Oklahoma, cotton that produces a bale to the acre is considered exceedingly good.

However, there is in the area an organization—a once-exclusive group—known as the Two-Bale-an-Acre-or-Better Club with a constantly growing membership.

Top production thus far was obtained by S. E. Pickett, of Humphreys, who got 3½ bales of cotton off each of 3 acres in 1949. The crop had been preceded by alfalfa and wheat. Pickett used no fertilizer and sprayed the crop only once.

D. H. Trent, of Altus, grew 2.4 bales per acre on 11 acres in 1950, following alfalfa.

A. D. Smith, of Mangum, in 1950 gathered 30 bales from 15 acres after growing alfalfa, and the following year Roy Holsey, of Altus, took 2 bales per acre from 4 acres on which he had grown alfalfa.

Seven acres previously in alfalfa and maize produced 2.1 bales per acre for Roger Moreau, of Olustee. He had fertilized with 100 pounds of 13-39-0 and sprayed 4 times.

Herman Watts qualified for club membership in 1951 with 2-bale cotton on 10 acres after alfalfa. He used no fertilizer but sprayed 5 times.

SCS technicians are suggesting to district cooperators who'd like to join the club that they plant sweetclover or alfalfa. Both are soil-improving crops which help to break troublesome plow pan.





Results of a prescription for the land are seen here in good grazing and fat cattle on Bob Keys farm.

**DRUGGIST GETS PRESCRIPTION.**—Bob Keys and P. W. Bozeman, of Florence, Miss., bought 40 acres of idle, gullied land in the Rankin County Soil Conservation District. Keys, who is a druggist, called on the local SCS work unit conservationist for a prescription that would restore the sick land to a health condition.

The prescription read as follows: "After removing all obstructions, prepare a good seedbed, apply lime and minerals as recommended by a soils test, plant crimson clover and ryegrass on hill land for winter grazing and bahiagrass for summer. Plant tall fescue and Ladino clover on bottom land."

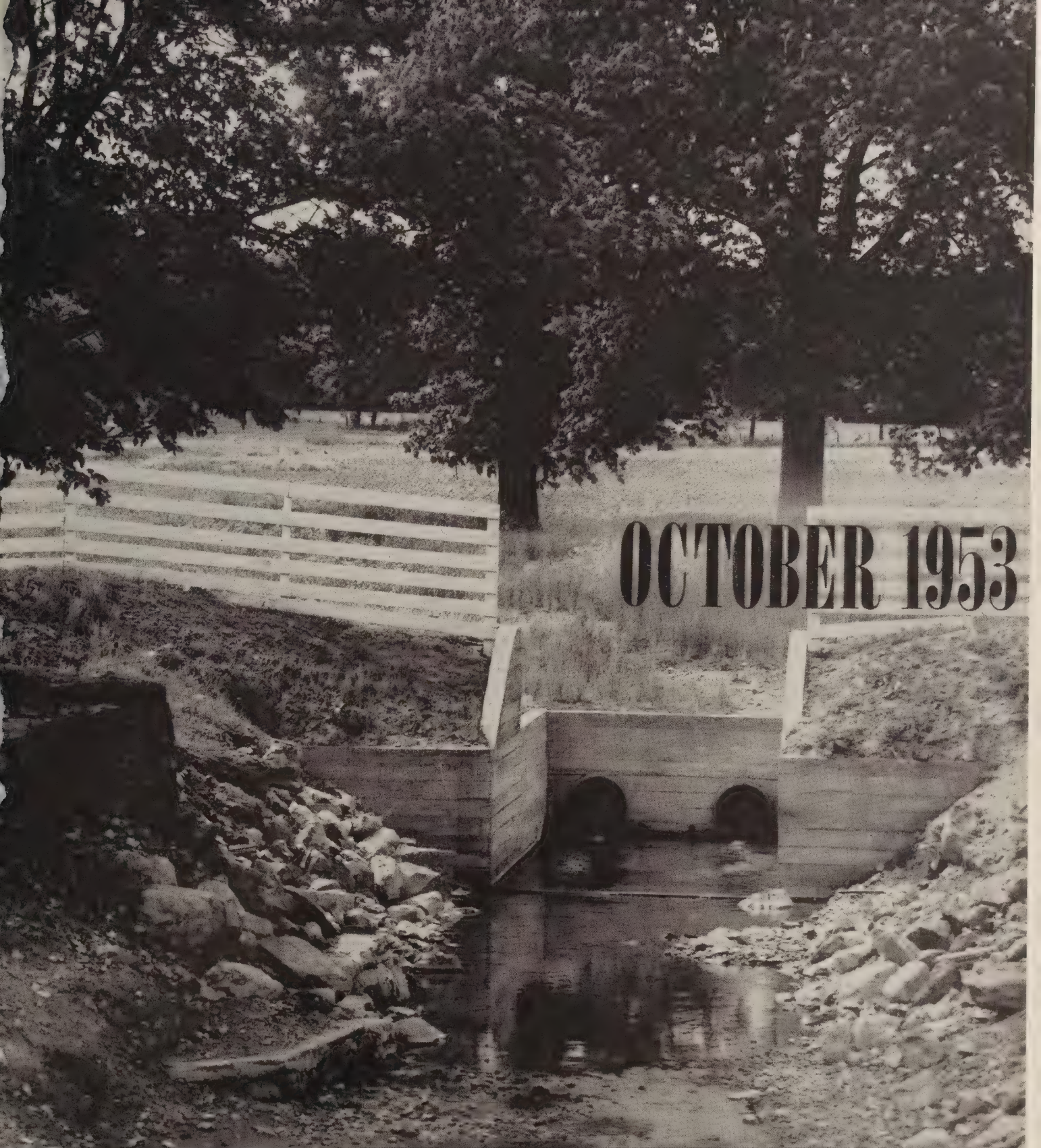
How well the land responded to treatment is indicated by the accompanying photograph.

**TREES FOR TOMORROW.**—People in the Monroe County (Ohio) Soil Conservation District are talking about "Pine Saturday." Led by a local minister, a church and entire community near Lewisville planted 30,000 trees in a joint project with a farmer. The farmer and the community are to share equally in any future profit from the trees. There was a picnic dinner and a short program, including an address by Governor Lausche.

**THE LAW STANDS.**—Massachusetts soil conservationists are heartened by the decision of Chief Justice Stanley A. Qua, Massachusetts Supreme Judicial Court, upholding the validity of the East Bridgewater bylaw prohibiting the stripping of topsoil from land without a permit from the town's selectmen. It was the first test of the legislative act of 1949 which permits towns to enact such a prohibitive bylaw. It means that like legislation adopted by many other Massachusetts towns can now be enforced. More than half of 22 towns in Plymouth County, where the test case originated, have this kind of legislation. Grafton and Dudley are among Worcester County towns with this type of legislation. There, control is in the hands of selectmen, soil conservation district supervisors, and the county agricultural agent. Now that they have a legal "green light," many more Massachusetts towns are preparing to enact topsoil-saving legislation.

**PINNING DOWN WATERSHEDS.**—More than 35 million pine seedlings were planted during the past season in the Tallahatchie and Yazoo River watersheds in Mississippi. Six recent plans made with the Mississippi Highway Department for roadbank protection bring under plan all state roads within the Tallahatchie River soil conservation districts.





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# Soil Conservation

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# SOIL CONSERVATION •

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**EZRA TAFT BENSON**  
SECRETARY OF AGRICULTURE

**ROBERT M. SALTER**  
CHIEF, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE  
U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

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**WELLINGTON BRINK**  
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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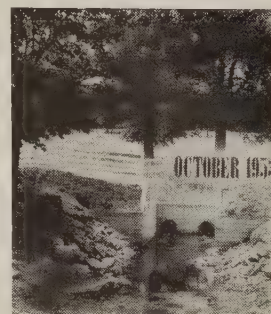
25 percent discount on orders of 100 or more subscriptions  
mailed to a single address

**TREES INCLUDED IN DEED.**—White pine trees, planted by the Avery County (N. C.) Soil Conservation District on land of an aged and infirm resident of the district, will be protected by future owners as well as the present owner, under an agreement drawn up between the district and the landowner and recorded as part of the deed.

The owner is an old-age pensioner and, under North Carolina law, the pension payments represent a lien against the property. At his death, the property would normally be deeded to the county and state governments, or be sold to the owner's heirs for the amount of the lien.

The agreement provides that the owner will to the best of his ability protect the pines from damage by fire and grazing and will allow only those trees to be cut or removed which are recommended for cutting by a qualified forester. Since the agreement is recorded in the deed, future owners also will be bound by it.

The FFA Chapter of Newland High School cooperated with the district by providing the labor to plant the 4,000 white pines, which were set out at 4x4 foot spacing as a demonstration on a steep eroded area facing N. C. Highway 194. To emphasize the demonstration, trees planted at closer spacing were used to spell out the words, "Save Soil," in 40-foot letters.



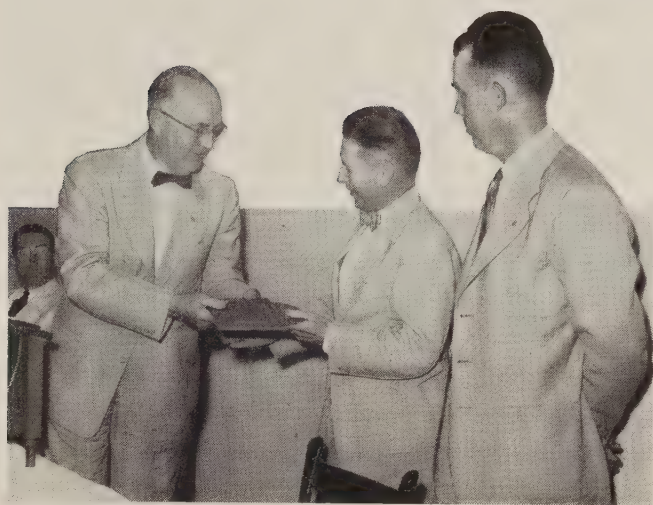
**FRONT COVER.**—This drainage outlet structure was built in 1951 on the V. D. Neal farm No. 7 in Miami County, Ohio. It is technically known as a box inlet straight-drop spillway. The drainage area is approximately 1,200 acres. Photographer: Hermann Postlethwaite.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

# This Is What Makes a Winner!

*The Chief of the Soil Conservation Service reports on the exceptional record of a Virginia work unit.*

By ROBERT M. SALTER



**Dr. Salter proudly presents a 1953 U. S. Department of Agriculture superior service award plaque. Receiving it on behalf of the work unit are L. B. Henretty and Richard L. Sanford.**

SOIL conservation has to be good to be of the award-winning brand.

We had an opportunity to see just how good the soil and water conservation program is which caused north-central Virginia's Culpeper-Rappahannock Work Unit to be one of four selected from among some 2,900 Soil Conservation Service work units to receive the 1953 United States Department of Agriculture superior service award.

We saw outstanding examples of conservation on the land.

We observed conservation reflected unmistakably in the minds and hearts of those who own and operate that land in the Culpeper Soil Conservation District.

We heard the program evaluated in terms of enthusiastic praise by businessmen and other community leaders.

And we noted with particular satisfaction Service personnel giving credit where it properly belonged for the recognition that had come their way—to the district supervisors and others whose conserva-

tion leadership and accomplishments were responsible for it.

The occasion was the plaque-presentation dinner at Culpeper, participated in by conservation leaders from throughout the 5-county district. Actually, the day's eye-opening activities started in mid-morning, in the farm office of Culpeper County Supervisor T. G. Ragsdale at Brandy Station 5 miles out of town. Ragsdale, who is vice-chairman of the State Association of Soil Conservation District Supervisors, operates the 800-acre dairy and livestock "Beauregard Farm," owned by J. C. Miller, Jr. of Richmond.

Highlights of this successful conservation farm operation were chronicled in random notes jotted down while Ragsdale gave us preliminary briefing from his farm plan and afterward took us over the farm.

Some conservation work was done on the place in 1940 out of the Brandy Civilian Conservation Corps Camp, but Ragsdale dates the current program on the farm back some 10 years, under the Culpeper district operations.

Before that, the soil and water problems were serious. The land was farmed in square fields, and erosion was so bad that the highway crews had to use bulldozers to move the soil off the road along the lower side of the place after heavy rains. Some spots were so wet and poorly drained that sometimes they couldn't be worked in season, and production suffered accordingly. Old bluegrass pasture had low carrying capacity, to say nothing of old pineland and an old orchard that were not producing at all. Even some machinery operations were difficult; at times the tractor wheels would spin in hauling hay loads up out of sloping fields.

Owner Miller, it seems, was somewhat skeptical when they first talked about a conservation plan. As Ragsdale says, "This is a commercial farm and has to pay its way." But he studied the soil maps and gave the go-ahead, becoming enthusiastic about





**Products of conservation farming: good food and smiles. Left to right, at buffet luncheon served at Beauregard Farm, operated by T. G. Ragsdale at Brandy Station, Va.: Mrs. J. A. Smart, wife of the area conservationist at Charlottesville; Mrs. Ragsdale, Dr. Salter and Mrs. Salter.**

the conservation measures as they promptly began to show results. The 1,200-acre Miller family farm at Sperryville also has a conservation farm plan.

Although Ragsdale sees another 4 or 5 years' work still needed to carry out all the details of the plan as originally conceived, the casual visitor to Beauregard Farm certainly might be pardoned for concluding that about everything already has been done. For example, he sees some 300 acres of

#### **OTHER SUPERIOR SERVICE AWARDS**

Tulia, Tex., Work Unit .....	1947
Broken Arrow, Okla., Work Unit .....	1949
Hamilton, Tex., Work Unit .....	1949
Perry, Okla., Work Unit .....	1950
Purcell, Okla., Work Unit .....	1950
Cimarron, N. Mex., Work Group .....	1951
Hinton, Okla., Work Unit .....	1951
Northern Utah Work Group .....	1951
Belmont, N. Y., Work Unit .....	1952
Pleasanton, Calif., Nursery Unit .....	1952
Shattuck, Okla., Work Unit .....	1952
Drainage and Earth Testing Laboratory, N. Mex. ....	1953
Idabel, Okla., Work Unit .....	1953
Little Rock, Ark., Work Unit .....	1953
Wills Point, Tex., Work Unit .....	1953

contour stripcropping in 4-year rotation of corn followed by small grain with clovers, alfalfa and grass seeded in it in the spring.

Most of the rest of the farm is in grass and legumes, including the once wet land. These block fields are used for hay, ensilage and pasture, depending on the season. Beef cattle are on pasture at least 8 months of the year, and dairy cattle on full- or part-time pasture 6 or 7 months. For example, orchardgrass, Ladino and alfalfa are grazed in late March and part of April—as high as 50 head of cattle and calves on 30 acres—and then the first cutting of hay is put in the silo.

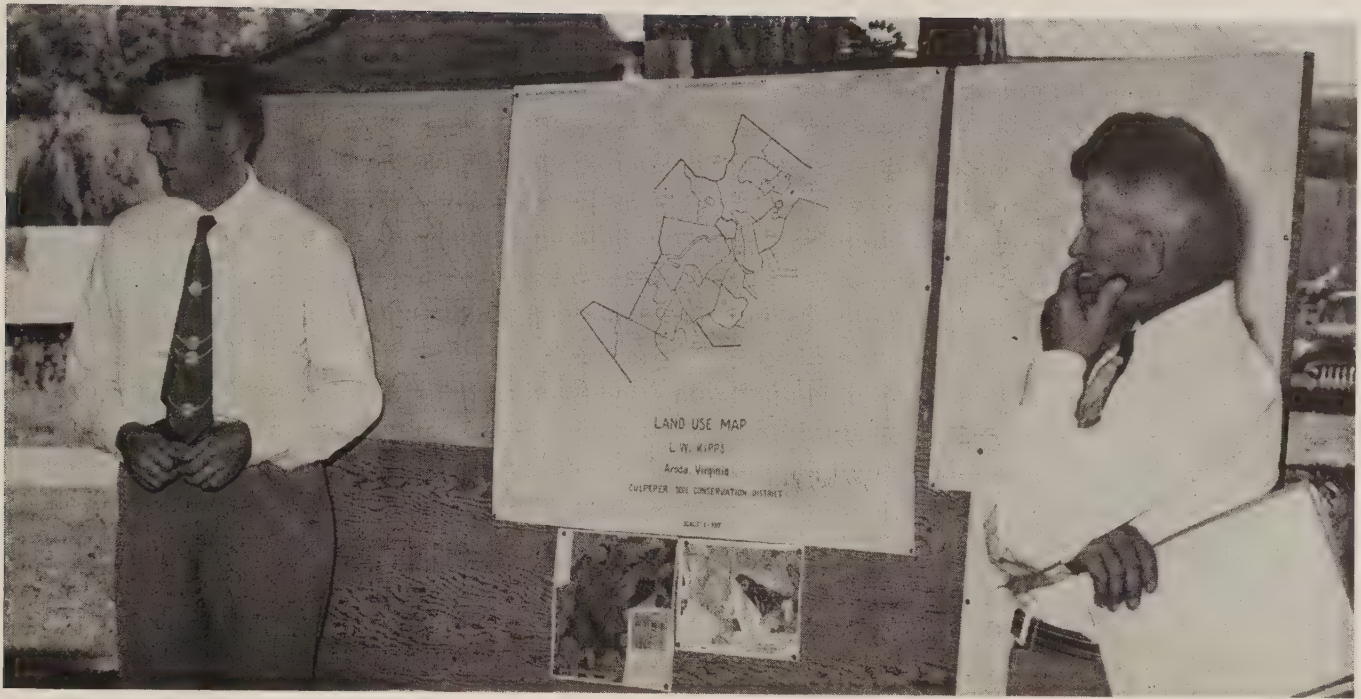
After taking a hay cutting from grass-legume mixture seeded in grain in the spring, Ragsdale gets fall grazing. He showed us a field of oats, too, that was grazed by sheep last winter, and which stood to make a top yield. Small grains used to reestablish pastures as well as grasses and legumes, are grazed in October, November and December and in February and March. Grass and ladino normally are grazed from April 1 to December 15.

Ragsdale said they are thinking now of omitting corn almost entirely in favor of the small grain-grass rotation. His favorite pasture and hay mixture results from seeding 10 pounds of alfalfa (Oklahoma or Kansas common), 3 pounds of Kenland clover, 1/2 pound of ladino, and 10 pounds of orchardgrass. He already has got to the point of not having to use any nitrogen fertilizer in the



**Giles H. Miller, president of the Culpeper National Bank, describes benefits to the community from soil conservation.**





Vice Chairman L. W. Kipps (right) of the Culpeper Soil Conservation District explains to visitors his land use map. Garland Kidd, work unit conservationist, stands by to answer some of the technical questions.

T. G. Ragsdale (seated) briefs visitors on his farm operations. Looking on are Dr. Salter, Frank B. Harper, also of the Soil Conservation Service; and Russell J. Fisher, a supervisor of the Thomas Jefferson Soil Conservation District and Virginia director of the National Association of Soil Conservation Districts.





grain. He reported success on clover, using nearly a ton to the acre of about 32 percent rock phosphate. He is keeping the bluegrass pasture, also, but building up its carrying capacity through conservation management.

The Beauregard Farm visitor will see many other effective conservation practices in operation, including open-ditch drainage, clearing of the old pine-land and orchard for grain production, pasture clipping with special lawnmower-type mower, contour fencing, permanent multiflora rose hedge fence in progressive plantings that he plans to build up to 4 or 5 miles. And the entire farm is part of the soil conservation district's nearly 6,000-acre Brandy Station Game Preserve, designed to build up the game supply. Ragsdale is especially partial to the multiflora rose, some of which already is 5 years old, as a means of increasing game birds and song birds which he contends beat poison for keeping down crop-damaging insects.

Most gratifying to me was Ragsdale's report on returns from this conservation farming. The farm is now carrying about 250 dairy cattle (100 to 125 milkers), 100 beef cattle including 50 registered Angus, 70 ewes, and 8 to 10 purebred Berkshire sows for Minnesota-hybrid boar breeding. These are some of the ways in which conservation has paid off on the Beauregard Farm—

Soil erosion "as nearly controlled as we probably can ever do it, with very little water leaving the farm."

Fifty to 100 percent more corn yield, pasture and hay crop yields doubled, an increase in small grain yields even more striking than those of corn.

Twice as much livestock as before the conservation plan was developed, and more milk being shipped than ever before.

Carrying capacity of bluegrass pasture increased 3 to 4 times, and so much forage being produced that "we've got to build more silos."

Savings in fuel costs and machinery upkeep that can be credited partly to contour stripping.

All improvements during the last 10 years paid for out of the increased yields and income.

And, finally, as Ragsdale sums it up, "In this system we are improving the land and making a good living!"

His statement was amply borne out at the bountiful buffet lunch Mrs. Ragsdale served, which

included fried chicken, home-cured Virginia ham, vegetables from the contoured garden seen through the dining room window, and ice cream and cake topped with crushed strawberries. Ragsdale proudly called attention to the fact that nearly everything on the menu was produced on the farm.

Chairman W. M. Yager of the Culpeper district supervisors had a similar story to tell as he showed us over his 350-acre farm down below Culpeper in Orange County. He took us up on a sloping field and told us how all this land used to be in blocks, fenced with rail fences. It lost a lot of soil through erosion. Grassed waterways, we could see, were gullies so deep they couldn't be crossed with a tractor before Yager developed his conservation plan, starting 10 years ago. In fact, he said, he convinced himself of his need for conservation by going out onto those same fields in the rain and seeing what was happening. And there was too much bouncing when he tried to navigate farm machinery over those old washed-out corn rows.

The Orange County supervisor said his contour strips have taken care of the situation. When water goes off the fields now, no soil goes with it.

He uses orchardgrass, red clover, ladino, and alfalfa in his forage mixtures, in up to 6-year rotation with alfalfa, and also has bluegrass pasture which he likes.

Although this supervisor told us "I'm not done yet" with putting the plan in effect, he reported satisfying results. He has increased the size of his dairy herd and practically doubled the total number of livestock. Yet, he produces more grain and hay than he can use, whereas formerly he had to go out and buy grain. He farms his striperopped fields with a smaller tractor than could be used under the old up-and-down-hill system, and there has been economy in machinery operation. He harvested enough timber from his 10-acre oak woodlot to provide lumber for a 60-cow dairy barn and his tenants were well supplied with wood.

"My conservation plan has increased production, and has definitely paid off in money," Supervisor Yager said. "And it has saved soil. You can't replace soil, though you might restore fertility. Of course, you can't do it all overnight; it takes time, but it's worth it."

A pause for lemonade and Mrs. Yager's home-made cookies under the big shade trees in the Yagers' front yard. Then on into Madison County,



**A glimpse of the Beauregard Farm, where 300 acres are in a 4-year contour strip rotation. Here, its grasses and legumes alternate with barley.**

through the 24,000-acre Beautiful Run watershed where 20 farmers are working toward conservation farming in an unbroken block, thence to the 400-acre main part of L. W. Kipps' farm of nearly 700 acres. Kipps is vice-chairman of the Culpeper supervisors, but he had a conservation plan back in 1938 before there was a district. He's proud of the brushland he's converted to clover and blue-grass for hay and pasture, and of the other land he has taken out of crops and put chiefly into grass and alfalfa. He said he thought more of that should be done.

Kipps is pleased that he has been able to treble his livestock numbers and still find himself with more feed than he can use up. He runs 175 head now, including 80 milk cows, 30 beef cows, steers and calves, and the rest young dairy animals.

He's happy too over the 3 miles or so of tile drainage that has made high-producing land out of formerly low-producing land, of his contour strip-cropping and conservation crop rotation, of his farm pond, and of his multiflora rose fence.

Kipps is proudest of all, though, of his neighbors' interest and accomplishments. He guided us to a ridge-top of recently-harvested alfalfa and pointed to contour-stripped fields and pastures in all directions.

"One of the main things I feel right proud to have had a little part in," he said earnestly, "is all the strips you can see around on the different farms.

I was the first one in this area; they used me as a guinea pig to get something started before our district was started in 1939. The folks around me have come along and are doing a better job now than I'm doing!"

More lemonade and some of Mrs. Kipps' home-made cookies in their front yard, while Kipps explained details of his plan from maps displayed beneath a shade tree. Then on around through Madison Court House for a final stop, to see what conservation drainage improvement has done for the Robinson River bottom land holdings of R. S. Graves Brothers, Madison County landholders and businessmen.

We stopped for a close look at about 80 acres drained by 6-inch main tile and 4-inch laterals, but there is 600 acres of bottom which Graves explained all is in cultivation each year. He follows a rotation of corn, barley, oats and grass, and uses fertilizer on both grain and hay crops. He also uses cross strips, keeping about two-thirds of the bottom in crops "to stop and hold sediment coming from the land above."

"We don't aim for it to go any farther," Graves remarked. "We don't want it to get out of the county!"

This bottom land, he told us, had been going down for a hundred years and wasn't good for

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# How Feed the People?

*Twelfth Institute on Conservation, Nutrition and Health  
looks for an answer to problem of world hunger*

By GLENN K. RULE

**S**TATESMEN may be wiser than they know when they say, "Let's get down to the grass roots of this matter." We were told in Chicago in July that the effect of grass roots on the soil is the most fantastic agricultural phenomenon in the world, that the atomic bomb is not so important to the human race as is humus, and that only through grass can we maintain and increase the humus in the soil.

Thus grass, in a word, supplied the accent to the Twelfth Annual Institute on Conservation, Nutrition and Health held at the medical center of the University of Illinois and traditionally sponsored by the Friends of the Land. Grass came into prominence at the institute through a challenging paper by Frederick Lyle Wynd, research professor of plant physiology at Michigan State College, who spoke on the subject, "The Contribution of Restoring and Maintaining Organic Matter in Soils."

This provocative paper precipitated some discussion and debate immediately after presentation but Professor Wynd's views were again challenged when Ollie Fink conducted the open forum in the closing hours of the session. This paper, and others, will appear in the early issues of the Land Magazine.

"We have great need," said President Jonathan Forman in his summarizing remarks, "to be continually informed about everything relating to soil and man. Our primary purpose has not been to assemble great crowds in these conferences. . . . We hope to retain the interest and contribution of a small, hard core of capable people who can and will help us to attain our objectives. As our population increases we are faced with the question, 'How are we going to feed the people?'"

How, indeed! This was the question that permeated the conference and in a sense it served as a measuring device to evaluate the contribution from each of the several speakers.

Dr. Robert Cook, editor, *Journal of Heredity*, reminded us that half of the human race is going to bed hungry every night and he insisted that despite our gains in technology there is still too much lag between fact-finding and application. To narrow this gap he suggested that we project our view into the future and far beyond the customary date of 1975. Prof. Robert L. Pendleton, of Johns Hopkins University, in his comments about tropical soils, held out little hope for any extensive future supply of food from these sources. Tropical agriculture in general, he said, is based on poor soil that won't justify the use of commercial fertilizers.

Wheeler McMillen, president of the National Chemurgic Council and editor of the *Farm Journal*, called for a vigorous effort to examine and appraise the use of non-edible portions of plants. Prof. H. H. Mitchell, of the University of Illinois, stressed the importance of high-quality protein in animal diets. Barry Commoner, plant physiologist, Washington University, St. Louis, discussed the role of plant proteins and plant viruses. Dr. L. M. Turk,

(Continued on page 64)

NOTE.—The author is executive officer to the Chief, Soil Conservation Service, Washington, D. C.

# Study How to Do a Better Job

By GORDON WEBB

**“W**HAT makes a soil conservation district successful? What are our jobs as district commissioners? Our opportunities? What are our state and national associations doing for us? What do we expect of our associations? How finance them and our districts?”

Questions like these are being studied by the farmers who govern Mississippi's districts in a series of meetings being sponsored by the State Association of Soil Conservation District Commissioners.

The idea grew out of recommendations of the southeastern area and the Mississippi association education committees in 1952.

“Why are some district supervisors active, and others inactive?” Southeastern Vice President Sam A. Thompson, of Itta Bena, Miss., asked members of the area education committee at last year's meeting. “Is it because some supervisors understand their duties and responsibilities, and others do not?”

The discussion that followed led the committee to add supervisor-education to its list of suggested activities. “We need to inform ourselves before we can inform others about soil conservation districts,” the committee said in effect.

C. K. Fisackerly and members of his committee proposed the Mississippi workshops, and his association endorsed the plan. The State's 74 Districts were divided into groups of 5 to 8 for a series of meetings to be led by officers and directors of the State association.

Association President L. F. Angelo and Thompson arranged with the State heads of agricultural agencies for their local representatives to attend. As workshops were scheduled, letters of invitation went out to both commissioners and agricultural workers.

“The agricultural personnel of your county—Soil Conservation Service technician, Extension county agent, PMA administrative officer, Farmers Home Administration supervisor, Forest Service representative, and the vocational agricultural teachers—have been informed by their superiors at the State level to attend with you where possible,” said one typical letter to district commissioners from a State association officer. “These boys will not get travel for this meeting; so load them up in your car and bring them along.”

After the first 8 meetings, district board members and agricultural workers had a much better understanding of the district program and its responsibilities.

Attending this initial series of meetings were 128 district commissioners, 123 agricultural workers, and 17 others. The “others” included bankers, businessmen, and farmers.

A kit of materials developed under Thompson's leadership was distributed to the workshops. It included NASCD leaflets, pamphlets, and decals; copies of the basic memorandum of understanding between a district and the USDA; supplemental memorandum between a district and SCS; sample memorandum between a district and a State Forest Service; Public 46 creating the SCS; and a printed copy of the State soil conservation district law. The district law was printed by the Newton County District.

Two true-false quizzes were used to open the meetings, and led to excellent roundtable discussions.

One consequence of the workshops was increased attendance of district board members at the State association's annual meeting in January.

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NOTE.—The author is in the information division, Soil Conservation Service, Spartanburg, S. C.



# Youth On Its Toes

By CLEM AULT

WE owe our American youth something for the praiseworthy way they're learning the ABC's of soil and water conservation.

The vigorous way the kids are digging into tough land problems and picking up the facts on our agricultural needs is truly one of the best signs of our age. Nearly every day you hear of some new good land use job the young folks are tackling. They're dead serious about guarding the rich soil and water heritage. It is clear to them that they have a big stake in their country's lands.

It isn't any one young people's group that is leading the way in soil conservation. Good land use is a

pretty well recognized program among many organizations such as Boy Scouts, Camp Fire Girls, F. F. A. and 4-H Clubs. They all are learning how to conserve and develop the land by "doing."

It would be hard to find a more enthusiastic group of young conservationists than the Scouts of Troop 9, Medford, Oreg. They got their "know how" the hard way. No "parlor" farming for them!

First, they acquired grass roots information on soil and water problems, and what to do about them, from the new Soil Conservation Merit Badge pamphlet and from talks with SCS technicians. Then came the "doing." Under their scoutmaster, Dr. William H. Roberts, a dentist, and troop committeemen they helped stake out a rough field by marking the high and low spots for leveling. Then they turned out and assisted with the actual leveling job. The work was well done and the field is in shape to drain and irrigate properly.

NOTE.—The author is soil conservationist, Soil Conservation Service, Medford, Oreg.



Technician and Scouts get the feel of the good earth.

Next, the boys pitched in and helped seed a grass waterway in an old, meandering ditch channel. The scouts had a lot of fun operating the tractor and re-shaping the fields and the waterway which now carried runoff safely from the field.

Another "good turn" they performed for soil conservation—and all of us—was the planting of some 1,300 multiflora roses to provide food and shelter for wildlife.

They rounded out their conservation schooling on soils, pasture mixtures and erosion by touring the farming area north and west of Medford early this spring.

For a conservation job "well done," 7 scouts of Troop 9 were awarded the Soil and Water Conservation Merit Badge, a recent addition to Scouting's Merit Badge series.

It takes solid work to pass a merit badge on soil and water conservation. There's no easy way. Scouts must school themselves on good land use and apply their knowledge in the field. It's the "learn by doing" feature that has made it so much fun for scouts.

Sammy (Pee Wee) Jennings is a good example. He's helped level that 15-acre field. His mother, Mrs. Sam Jennings, says he got more out of the project than any he has undertaken in scouting.

Troop 9's experience is an indication of the way that Pacific Northwest youngsters are getting behind the Nation's land-improvement movement today.

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**DISTRICT LEADER ON "FUTURE" BOARD.**—Otto H. Liebers, Nebraska dairy farmer, legislator, and conservation leader, has been elected to the board of directors of Resources for the Future, Inc., a non-profit corporation supported by the Ford Foundation for research and education in the conservation and development of the Nation's natural resources.

Liebers, a partner-owner of the Skyline Dairy and Farms, is co-chairman of the Salt-Wahoo Watershed Association and chairman of the Salt Creek Drainage Association. A graduate of the University of Nebraska College of Agriculture in 1913, he served as Nebraska's first county extension agent in Gage County.

For 8 years he has been a member of the executive committee of the American Guernsey Cattle Club and Golden Guernsey, Inc.

As its first project Resources for the Future is sponsoring the Mid-Century Conference on Resources for the Future, to be held in Washington next December 2 to 4.

## WHAT MAKES A WINNER?

(Continued from page 55)

anything before the conservation program came along. "Cattle couldn't even walk over it." Now, he figures, it is "the best land in the county," producing 100 to 150 bushels of corn per acre, proportionate small-grain yields, and prime grazing after the crops are off.

We learned that Madison County now boasts more of this tile drainage improvement than any other county in the Piedmont of Virginia—better than 60 miles of tile drains, at 700 to 1,000 feet per acre.

"I figure," Graves said, "that the drainage paid for itself in the first crop of corn. With corn the price it is, I figure the drainage will pay for the tile the first year and for the land the next crop. More important, we are improving the land. I don't think any man should farm if he doesn't leave the land in better shape than when he started."

What the conservation farming we had been looking at during the day means to the community was summed up at the evening award-presentation dinner by Giles H. Miller, president of the Culpeper National Bank, American Bankers Association vice-president for Virginia, and former president of the Virginia Bankers Association.

"Of course, I think it has meant perhaps most to the individual farmer who has needed and received the conservation help," he told the guests, including farmers, business and professional people from the five counties in the Culpeper Soil Conservation District. "We in banks are in a position to see what has been accomplished. In addition to individual benefits, conservation has been a great help to the community. It has been a great help in lifting agricultural income of this whole district.

"Bankers will agree that it has been a big help financially. Conservation farmers in most cases have been able to obtain financial assistance needed. The farm plan is like an architect's plan, and we in banks have been requiring it more and more. This type of job needs the best cooperation that is available. Various agencies and individuals working together in this Culpeper Soil Conservation District have done this job, and I think this district has a great future."

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# Federated Clubwomen Look at Conservation

*Land-conscious officers and delegates spend two memorable days getting acquainted with modern methods of managing soil and water in a two-state area celebrated for its farming.*

By AIMEE SLYE



Left, top.—Members of conservation tour at home of Mr. and Mrs. Jesse Hakes. "Glenwood" was started in the late 1600's added to in the following century. Restored by the Hakes in recent years, it is surrounded by land now under conservation practices; formal rose gardens are in back, a fish-populated farm pond in front. Mrs. Hakes is president of the Maryland Federation of Garden Clubs and its veteran chairman of conservation.

Left, bottom.—Robert Strubel, of the Brandywine Valley Association, was a speaker. Immediately below.—Delegates pause at memorial to Francis Scott Key, Mt. Olivet Cemetery, Frederick, Md.

Right, top.—Barn on famous face-lifted Thrasher farm. (Photo by Charles O. Dodson.)

Right, middle.—Multiflora rose hedge and contour grain strip, Thrasher farm. (Photo by Charles O. Dodson.)

Right, bottom.—Mrs. E. E. Byerrum (left), conservation chairman of the General Federation of Women's Clubs, with two state conservation chairmen, Mrs. J. Marvin Strickland, of Georgia, and Mrs. Samuel Levy, of Louisiana.





**C**ONSERVATION-MINDED members of the General Federation of Women's Clubs wound up their 1952 national convention in Washington, D. C., with a bus tour of nearby Maryland and Pennsylvania. Led by their conservation chairman, Mrs. Florence Byerrum, 37 delegates from 15 states spent Memorial Day weekend viewing conservation practices under the guidance of technicians from the Soil Conservation Service. Extension Service and Forest Service cooperated. Prominent clubwomen attending included three state presidents, two state conservation chairmen, and the Federation's chairmen of water and soil, health and welfare, and child welfare. The group also included six members of the Florence Byerrum Conservation Club—a club formed to promote the cause of conservation in Illinois.

The tour covered the area from Washington to York, Pa., returning to Washington by way of Westminster, Md. As the bus and several cars traveled through the countryside they made stops at many places of historical interest. Among them were Mt. Olivet Cemetery in Frederick, Md., and at the National Cemetery at Gettysburg, Pa. At each officials greeted the group and gave a short historical talk.

At the Lawson King and Sons farm in Montgomery, Md., the group was joined by Fred Bull, Maryland's extension conservationist, and his party of technicians. This 1,100-acre farm, in the heart of the Montgomery County Soil Conservation District, is the home of one of the largest Holstein herds in the country—654 head. Fred Bull discussed grass plantings in the county and their value to the dairy farmers of the Baltimore-Washington milkshed. He stated that there were 12,000 farms cooperating with districts in Maryland and that stripcropping was the most important conservation measure in Maryland. The lush, green fields on the King farm were a beautiful example.

At the Thrasher Farm, Frederick, Md., Ray Kincaid, soil conservationist, Md., told the women how on August 18, 1948 the farm had been rebuilt. He recalled that some 50,000 people attended the event and that the only casualty was suffered by a gentleman who became so interested watching a blimp that was taking pictures overhead that he bit down on his sandwich and swallowed a bee.

Of particular fascination to the group were a "sky" pond and a beautiful multiflora rose hedge, planted that day, which is now about 5 feet tall. Kincaid explained that a sky pond is a farm pond which depends entirely on water from the sky. An apt name, the women were quick to see, the still water reflecting the blue of the heavens. The group was told that if a pond is properly fertilized it will not have algae and, also, the fish will keep mosquitoes under control. Kincaid warned the group against bringing fish home and throwing them in the pond as it upsets the balance. Mrs. Thrasher said that the farm is now paying its way and that she was able this year to make further improvements on her home.

Through York County, Pa., the tour was conducted by SCS work unit conservationist Melvin Blish. Conservation practices here included stripcropping, diversion terraces, tile drains, open ditches, farm ponds, reforestation, acres of long term hay, miles of outlets and sod waterways. A light rain which fell during much of the time made it very easy to see what was happening on the land. A delegate from Texas was particularly



The bus tourists stopped at Gettysburg National Cemetery. Here they were joined by Frank Brower, area conservationist; Mrs. Charles Orem, president of Gettysburg Woman's Club; Mrs. Frederic Greist, president of Women's Auxiliary of the Horticultural Association of Pennsylvania, and Mrs. Eva M. Pape, businesswoman of Chambersburg, Pa.

NOTE.—The author is with SOIL CONSERVATION Magazine, Soil Conservation Service, Washington, D. C.





Ray Kincaid, soil conservationist, and Fred Bull, extension soil conservationists, at sound-amplifier car telling story of Thrasher farm. In foreground are state and national officers of GFWC: Left to right—Mrs. Samuel Levy, chairman of Federation's department of welfare; Mrs. B. V. Todd, president, Louisiana Federation of Women's Clubs; Mrs. Marion T. Weatherford, president, Oregon Federation of Women's Clubs; Mrs. H. J. Hull, president, Idaho Federation of Women's Clubs; Mrs. E. E. Byerrum, Federation chairman of conservation; Mrs. I. R. Morrison, chairman of Federation's water and soil division. Mrs. Thrasher is behind Mrs. Todd.

*(All photographs with this article are by Hermann Postlethwaite, except as noted.)*

impressed and would listen to no apology for the rain, "allowing" that it looked mighty good to her.

After dinner at York, the women met with conservation officials of the area. A slide lecture depicting the work of the Brandywine Valley Association in conservation was given by Robert G. Struble, agronomist with the association. Frank R. Brower, Jr., area conservationist, SCS, suggested that clubwomen have a fine opportunity to encourage the formation of such conservation groups throughout the nation. Mrs. Byerrum expressed the appreciation of the clubwomen for the courtesies shown on the tour and stated she was sure they were receiving inspiration from the trip to go back and be of greater service in their communities.

The women, most of them from cities, were impressed with what they saw in the Hanover, Pa., watershed. This tract, consisting of 1,514 acres, is owned by the Hanover Municipal Water Works. White, scotch and red pine have been planted on

1,257 acres and the balance is in a reforestation program. There are only two private farms in this area and through the drizzle it was plain to see that soil was washing from these into the reservoirs, while on the forested portion no silting occurred. The delegate from Chicago remarked that it was this particular problem, silting of her city's reservoirs and harbors, that had won her to conservation. She has come to feel that city women have a vital interest in what is happening on the land, if only from a taxpayer's point of view, for the cost of dredging harbors and clearing reservoirs of silt comes amazingly high.

Back in Maryland, the second day, the tour was joined by Grover Zimmerman, work unit conservationist, and Solomon Hoke, district supervisor of the Carroll Soil Conservation District since 1938. Hoke pointed out the highest place in the county, 1,228 feet, where 5 watersheds start. He told the group that neighbors wondered about his



sobriety when he first started plowing on the contour. Now, with 812 farms cooperating with the district, he is considered a pretty steady fellow. The many conservation practices being followed in this area attested to the value of the district program.

The tour's last stop had been planned as a surprise by Bert Robinson of the Soil Conservation Service—a very canny move, as all women love a surprise. He had arranged with Mr. and Mrs. Jesse Hakes of Glenwood, Md., for a visit to their estate. The Hakes arranged a reception and tea for the group, hospitably inviting them to go through the house and grounds. The house, built in the late 17th century, is a fine example of Siamese (twin house) architecture. It has been restored to use by the Hakes in the last 7 years and holds heirlooms of both families from the days of the early settlers. The farm has been put into production, has a farm plan which includes a pleasant farm pond at the front of the estate. At the rear of the estate, formal rose gardens are a continuing delight. This mingling of older parts of our heritage with the newer, modern ideas of conservation seemed fitting and proper. Conserve the old and use the new, is a theme which would have met the approval of our early settlers.

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## WHAT MAKES A WINNER?

(Continued from page 59)

The farms we visited are not, of course, the only ones in the Culpeper district having outstanding soil and water conservation work to show. They are only representative of what farmers throughout the district are doing. Nor is the Culpeper district the only one—award winner or otherwise—with such effective conservation on display. It likewise is only representative of what soil conservation districts throughout the country are accomplishing.

Such an award as that given the Culpeper-Rappahannock Work Unit is gratifying and naturally is much to be desired. The award, however, is incidental. The real reward is the conservation on the land and the devotion of the district farmers and their neighbors in town to good stewardship of their lands. The best goal is for the soil conservation district and work unit programs over the country to be so equally outstanding that the only way to determine the award winners will be to draw numbers for them.

## HOW FEED THE PEOPLE?

(Continued from page 56)

of Michigan State College, discussed the role of mineral nutrients in the soil and Lewis B. Howard, of the University of Illinois, appraised the contributions that food technology can make toward the improved nutrition of man. Dr. E. R. Sears, Bureau of Plant Industry, outlined the contributions which scientific plant breeders may be expected to make toward the full production of food, clothing and shelter. Prof. H. B. Howell, of the University of Iowa, spoke on the economic aspects of soil conservation and Dr. Richard E. Myers, of the Pennsylvania Water and Power Co., outlined the contribution that a geologist can make in conserving natural resources. The Reverend Father Leo R. Ward, of Notre Dame University, discussed conservation from the standpoint of a philosopher.

This is the second year that the conference has been the guest of the Medical Center of the University of Illinois. The welcoming address was given by Dr. Roger A. Harvey, who outlined the role of radio-active isotopes in medical practice and showed through illustrative slides how isotopes are being used in industry for a wide variety of purposes.

At the evening session, Louis Bromfield, farmer and noted author, gave an enlightening and entertaining talk on the future of American agriculture. Joining him on the program was Lloyd B. Jensen, chief bacteriologist of Swift & Co., who discussed nutrition and its role in biological and social evolution.

The concluding full-length paper was given by Dr. John Detwiler, Canadian co-sponsor of Friends of the Land from the University of Western Ontario, who outlined the possibility for total food and fibre production of all lands in full production.

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**BETTER DRINKING WATER.**—Drainage in the Satilla River (Ga.) Soil Conservation District around Waycross has been bringing farmers a lot of agricultural benefits. J. T. Peacock, who lives in the flatwoods near Dubus Bay, claims it also has improved drinking water.

Dubus Bay is a 200-acre swampy depression with no natural outlet. The Satilla River District supervisors requested SCS engineers to make a survey, and the latter designed a 4-mile canal from Dubus Bay into Okefenokee Swamp. Ware County and the City of Waycross assisted at its digging.

"Now our water tastes as good as any water does," Peacock avers.



# Gully Stoppers

By LES VOLMERT and JOHN KRIZ

**F**ARMERS in the Lafayette County (Mo.) Soil Conservation District have found tube and riser erosion-control structures valuable as terrace outlets and gully stabilizers. So much so, that the 65 they built last year brought the total in the district to 124.

Lafayette county lies on the west side of Missouri just south of the Missouri River. It is an area of rich agricultural development. The northern part of the county is predominantly in Marshall and Knox loess soils.

It is in this area of steep, hilly land with easily eroded soil, and in the deer lick areas of the southern part of the county, that huge gashes 15 to 40 feet deep are rapidly developing. Depth alone does not cause all the trouble. The gullies tend to branch out into the fields and gradually a 40-acre field shrinks to 30.

But the number of gullies is quickly diminishing on the farms of district cooperators. After the formation of the soil district in 1948 work started almost immediately on the first of the high-quality, reinforced concrete tube and riser structures.

Spears Stewart of Lexington was the first farmer in the district to complete such a structure.

Albert Lichte, of Lexington, has built the most. He is a pioneer in soil conservation in this county



**Drop-inlet structure before fill is applied. It stabilizes a 17-foot gully and two terrace outlets, and serves as a crossing to farmstead. It also supplies water for livestock, and will make a wildlife area.**

and he built his first structure in 1927. This was a square box of wood in a big gully, and an earth-fill thrown in by horses. It didn't last long. Next Lichte tried a square concrete box culvert with a riser and no seep collars. This didn't endure much longer than its wooden forerunner.

In the meantime Lichte had been busily terracing his 375 acres. Soon after the district came in, he started work on his first successful drop-inlet structure. Today, he has 5 structures stabilizing waterways which are paved with reed canary grass carrying water from 340 terraced acres. Lichte had finally found the right answer to stabilizing his terrace outlets and gullies.

How did the Lafayette farmers build those 65 structures in 1952? The major impetus came from the supervisors Jim Schooling, Spears Stewart, W. L. Gruber, and Milton Uphaus, who aided the program materially when they arranged to have riser and seep collar forms built for renting at nominal charge. That was 2 years ago. These forms are now paid for and are serving as a source of revenue for the district.

PMA payments also were a big incentive for moving the work along. The average structure was about 68 feet long and of re-enforced concrete or metal pipe; it was from 12 to 42 inches in diameter. Ready-mixed concrete averaged 8 to 12 cubic yards; dirt-fill, 2,000 cubic yards. It took some 12 man-days for installation.

The enthusiasm of neighbors, working together, resulted in highly trained crews who needed little supervision. Several local contractors have become proficient in the work and require from SCS technicians only assistance on design together with minor supervision.



**Albert Lichte, Lexington, at cattle-guard and swirlboard protecting the riser on this 24-inch drop-inlet structure. This was once a 15-foot gash with side canyons eating its way into the fertile hills.**



# Siskiyou's Busy Bill Mathews



Mathews, with his son Douglas and Ken Creoni, technician, checks over a land-capability map.

By HERB BODDY

**W**ILLIAM MATHEWS, JR., a native son of Etna, Calif., has been making "good land use" talks all over Siskiyou County for 3 years now. Between times, he goes to his Farm Bureau gatherings, works as secretary and a director of the Siskiyou Soil Conservation District and runs 3 full-fledged farms.

Bill Mathews is a land evangelist in this era of high-speed farming. He goes out of his way to tell people about what good land use did for him, and will do for them. He hopes to tell his story to a lot more of the county's farmers in the days ahead. It's easy to talk about good land use, he says, when

it has paid off so handsomely on your own farm. He's one of hundreds of volunteer leaders, the country over, who are making the soil conservation movement go.

This Scott Valley conservationist began taking a closer look at better farming methods about the time he became a director of the Siskiyou Soil Conservation District in 1948.

He was a good average farmer before that. Yields of alfalfa hay, high quality seed and livestock weren't tops, nor were they really bad. He always was a careful farmer who tried to make the most of what he had.

But the more he mulled over the so-so output of his farms, the more sure he was that there were better and more profitable ways of farming. When Scott Valley and other Siskiyou county farmers wanted a soil conservation district to help them get

NOTE.—The author is in the information division, Soil Conservation Service, Portland, Oreg.



needed technical aid on land problems, Mathews was one of the leaders in the drive to get it voted in. And he was one of the first to swing into conservation work after the new district was set up.

From Ken Croeni, of the Soil Conservation Service, he got help in working out farm conservation plans for his three farms.

One of his first moves was to tackle sheet erosion on his sloping dryland. He used conservation plantings and tillage methods—something new to Scott Valley.

He cultivated after the grain harvest in the fall of 1951, and let the stubble and straw lie on the ground through winter. In spring, he disked twice, springtoothed and then cultipacked to get a firm seedbed. He planted intermediate wheatgrass and alfalfa, and crested wheat and alfalfa in alternate rows to conserve soil and improve fertility.

The stubble and straw protected his land from erosion and helped water to soak into the soil during one of the wettest periods in years. The crested wheatgrass drilled with alfalfa provides better pasture for beef cattle.

Mathews found that cross-slope tillage and a good rotation system helped to control erosion on sloping dryland fields. On the home place, he seeded 20 acres of fast-growing slender wheatgrass with sweetclover in alternate rows to increase and improve livestock forage.

Next he worked to get higher crop yields from 40 acres of sub-irrigated pasture. In 1950, he seeded 15 acres of this pasture to a mixture of alta fescue, orchardgrass, alsike clover and birdsfoot trefoil. From it came a high-quality hay yield the next year. Then he turned stock onto it.

Last year, Mathews grazed the field three times in rotation. The rest of the 40 acres of sub-irrigated land was seeded to the same mixture plus some brome and will be managed like his other conservation seedings.

He plans to manage his woodland tract of pine and fir on a selective basis and already has some of the trees marked for cutting. The California State Division of Forestry and the Soil Conservation Service are helping him manage and conserve his timber.

Mathews also is alert to wildlife values. He planted 1,500 snowberry and other plants to furnish cover for quail and pheasants.

As his next big conservation job, Mathews plans to drain 100 acres of wet leased land and some 20 acres on the home ranch.

Standing out in his conservation operations is the fact that he puts as much good conservation on his two leased farms as on his own acreage.

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## HOW DO BETTER JOB?

(Continued from page 57)

The idea is spreading. The program committee of the National Association of Soil Conservation Districts has recommended workshop or training meetings to be held under the sponsorship of the State associations to help develop leadership abilities in supervisors, commissioners, and directors. Said the group's report:

"The committee recognizes that many district board members are inactive because of lack of interest, lack of understanding, lack of incentive, or a combination of all three. This committee believes that, before we label these inactive board members as 'dead wood,' the State and national associations should give them an opportunity for training in their duties, responsibilities, and opportunities; and should give them assignments in inter-district work, and in State and area meetings and activities."

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**BEES, SOIL AND FLAPJACKS.**—The Northwestern Worcester County Soil Conservation District has rescued Frank Varnot, Barre, Mass., and his bees, and provided Varnot with an "insurance policy" on the honey top-dressing for his much-liked flapjacks.

Frank keeps bees as a hobby, and to pollinate his vegetable garden and orchard. In dry August, last year, nectar in native wildflowers was down to the vanishing point. To fight off starvation, Varnot's bees ate the honey they had stored in June and July for their winter food supply and for Varnot's flapjacks.

Varnot asked the district to help him develop a season-long bee pasturage. SCS technicians took a census of bee-favored native plants, scheduled the order of blossoming, and applied their "use each acre according to its capabilities, and treat each acre according to its needs" formula. They found some soil unsuited for any other use except growing nectar-producing shrubs like tartarian honeysuckle, multiflora rose, and lespedeza. Varnot planted these shrubs to supply his bees' needs when native plants were not available.

In 2 years the shrubs will be blooming and Varnot's bees will have all the food they can eat throughout the year. The growth also will provide cover for wildlife. Best of all, Varnot expects always to have all the honey he wants for his hot flapjacks.



# Seven Farmers Tame a River

*Someday, they say, there will be pastures again where there is now a wide and barren channel.*



Scott River flows by the Courtney B. Camblin farm. It formerly cut deep into pasture and cropland but now is being controlled by riprapping. Denuded hills seen here have greatly contributed to heavy runoff and erosion.

By **HERB BODDY**

**R**IVERS can be a big help to farmers. They can also cause trouble. They can crest and drop, and then cut and scour deep into high-yielding cropland.

For 20 years or more, river erosion was a most serious matter to 7 landowners along a 5-mile stretch of Scott River, a meandering stream in Scott Valley, Siskiyou County, Calif.

These farmers—Harry Tozier, Frank Lathrop, Walter Brown, Courtney B. Camblin, Mrs. Manuel A. Johnson, Clinton Custer and Ralph Simpson—by the winter of 1950 had lost to the stream some 250 acres of their grain and pasture land. A thousand more acres were in imminent danger. Once 75 feet across, the channel had widened in places to 750 feet. Things were in a sorry-looking state where the river had been.

Why was Scott River eroding? Surveys by SCS technicians blamed the clearing away of protective trees and brush to allow cropland to be farmed right up to the edge of banks. Vegetation is, of course, Nature's way of sealing such banks against depredation.

Oyster shell scale killed off the remaining cover such as willow and cottonwood trees.

Scott Valley farmers also point to timber-cutting operations which have stripped off the cover from steeply-sloping watershed areas surrounding the valley. Runoff pours down now, as a result. Some say, too, that placer mining of the river and its tributaries had something to do with the high soil damage. Another thing that has helped pave the way for erosion on the steep range lands is replacement of the deep-rooted bunchgrass cover by weeds, broncgrass and brush.

But whatever the reasons, all agree there have been a lot of changes in the channel's course that brook no good for farmers. Very likely there was

NOTE.—The author is in the information division, Soil Conservation Service, Portland, Oreg.



some erosion going on a hundred years ago when Colonel Roger Jones commanded Companies A and B, U. S. Dragoons, garrisoned at Fort Jones, not far away.

A century of farming has brought a lot of changes to the Valley's soil resources. Instead of a few tons of soil slipping away, damage has been measured in acre lots.

But you can't throttle a rampaging stream by epithets. You have to work. Harry Tozier, a director of the Siskiyou Soil Conservation District, and his sons, came to this conclusion in the fall of 1950 when they discussed this problem with some of the other landowners.

Farmers not only talked about their soil losses but also offered ideas for harnessing the channel. Technicians were on hand to answer questions and help landowners set up a workable plan. Tozier explained that each farmer was free to tackle the job his own way. Each could do as much or as little conservation work as he pleased.

For a tough streambank control job like the one needed along Scott River, the technicians recommended rip-rapping. This calls for shoring up the sides with rock, pine and oak timber. It's a plan that has worked on many other far-western streams. In fact, rip-rapping was put to good use by one of Scott Valley's own residents, the late Fred P. Browne, some years ago.

When farmers got around to costs, the Production and Marketing Administration, offered to take over half the expense of work done by individual farmers.

Tozier and Simpson were two of the first farmers to use rip-rap. Others liked the job so well, they got Tozier to shore up their banks the same way.

Using a bulldozer, Tozier lined the banks with layer upon layer of pine and oak trees, cut from nearby hills. The trees provided a solid buffer for grain and pastureland against high water and flood stage flows. Plantings of native and golden willow, snowberry and matrimony vine were made along the old banks, to hold the soil and keep the rip-rapping secure.

The farmers' rip-rapping work got its big test during the heavy prolonged runoff period of the fall of '51 and spring of '52. Soil all along the protected section held fast.

Today Tozier says his rip-rapped farmland is in better condition than it has ever been before.

The work has slowed the river down, thus easing its cutting force. Sandbars are forming in the channel. And instead of taking soil away, the river is piling silt by the ton against banks. Under soil conservation the river is gradually restoring the 250 acres of lost soil. Farmers say that the present stream channel will grow a lot of good pasture someday—just as it used to do.

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**THOUSANDS OF ACRES BENEFITED.**—Supervisors of the Lower Neuse Soil Conservation District point to the construction of a 3½ mile drainage canal serving 30 farms in Pamlico County, N. C., as evidence of good team work by farmers.

M. E. Ireland and Willie Paul took over the job of collecting assessments and paying bills, while SCS men contributed the final survey, staking and supervision of construction.

Completion of the work has brought some 4,000 acres of the best land in Pamlico County back into full production.

This is only one of a number of such jobs undertaken by more than 30 groups in the district, benefiting more than 11,000 acres at an estimated cost of \$117,000. More than 400,000 yards of excavation was involved on a total of 53 miles of drainage canals, all of it in accord with the principles of using land according to its capabilities and treating it according to its needs.

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**FILMS CONVINCED.**—Motion pictures were a factor in a soil conservation district referendum in Cooke County, Tenn.

When hearings were held last fall, County Agent Hugh Russell made intensive educational use of two films—"In Common Cause" and "The People Together."

Following a successful hearing, County Agent Russell planned an intensive pre-referendum educational campaign during the spring with motion pictures as the main device. For this effort, every motion picture projector available was put to work showing such films as "The South Grows Green," "Permanent Agriculture," "The People Together," "This Is Our Land," "In Common Cause," "Save That Soil," and "Neighbor's of the Land."

During a 2 weeks' period preceding the referendum, County Agent Russell asked for and received the co-operation of representatives of several agencies and groups. Joining him in showing the films were the Vo-Ag teacher, the assistant county agent, the home demonstration agent, the Pet Milk field men, and others.

The following month, landowners from every part of the county poured into the polling places to cast their ballots. A total of 691 voted for the district and only 2 against. At Del Rio, mountain community where the famous singer, Grace Moore, was born, 150 farmers voted for the district and not one opposed it.



**WOODLOT CONFERENCE.**—Public and private foresters and others concerned with management of America's more than 261 million acres in small farm-size woodlands met in Chicago in June for a brand new look at what they agreed is "America's number one forestry problem."

The meeting, called by American Forest Products Industries, was a working conference where public, industrial and consulting foresters from every part of the nation exchanged ideas and experiences.

"The changing economic status of forestry in the United States has brought great opportunity to the doorsteps of millions of little landowners," Col. William B. Greeley declared in opening the Chicago session. "Our little forests, averaging 62 acres each, make up 57 percent of the commercial forest land in the United States and 75 percent of all our private commercial forest land. They contain the most accessible and potentially the most productive 57 percent of our total wood resource."

**EVEN THE DOGS KNOW.**—W. E. Downing, farmer of near Raymond, Miss., finds that even his dogs have learned to look for birds in strips of bicolor lespedeza and don't waste time and energy elsewhere.

Downing started planting strips of bicolor in 1947 to provide food and shelter for birds as a part of his farm plan with the Hinds County Soil Conservation District. He now has 20 such strips on higher spots where no danger of high water exists. Each is 4 rows wide and 400 feet long. They provide food and cover adjacent to some 2,500 acres of good hunting land where the birds can range. He supplements this program by planting milo maize around the border of his corn fields.

"Follow my hunting dogs and you'll see every bicolor lespedeza strip I have," says Downing. "They know that these strips are the best places for quail."

**FARM "BLUEPRINTS" VALUED.**—L. M. Jones, of Warren County, Miss., returned to the farm in 1951 after several years as a building contractor. He says he would have been lost without the "plans and blueprints" developed for his farming operations with the help of the Warren County Soil Conservation District.

Classifying each acre of land according to capability has provided him with different kinds of materials with which he can build a more productive farm. Plants fitted to these materials will give him a grazing program needed to support 47 head of dairy cattle.

**BICOLOR ATTRACTS QUAIL.**—P. C. McClary, Jr., of Friendfield Plantation in Georgetown County, S.C., in 1946 planted one-eighth-acre patches of bicolor lespedeza on well-drained areas in the woods and along the edges of fields. He now has 235 patches scattered over 2,500 acres.

During the past three seasons, McClary reports counts of 67, 64, and 85 covies of quail. He estimates that during the past season 250 or more birds were shot on the property.

"We examined the craws of the birds killed and only one last year did not contain bicolor seed," McClary says.

**RECORD-BREAKING RESPONSE.**—"At the close of the first 2 weeks of the contest period for our National Soil Conservation Awards Program, we had received over 600 enrollment post cards from soil conservation districts all over the country," according to Art Morrill, director of the program for the Good-year Tire and Rubber Company. Only Connecticut and Nevada remain to be heard from.

**AWARD WINNER DIES.**—Leo R. Arnold, 65, veteran Michigan county agricultural agent known for his work in soil conservation, died on July 8, only 8 days after his retirement. Arnold, along with R. E. Briola, district conservationist, received a joint U.S.D.A. superior service award for their cooperative work in soil conservation in 1950. Their chief effort was the restoration to production of windswept, sandy soil along Lake Michigan in Ottawa County.



This small dam on the Zumbro River near Wanamingo, Minn., isn't what it used to be.

**SILT THE DESTROYER.**—This dam at Wanamingo, Minn., in the Zumbro River washed out last spring. It was constructed in 1936 and in a period of 10 years completely silted full. At one time shortly after construction was completed this was a recreation spot with a fine bathing beach and good fishing.

Technicians predicted that it would be silted full in 10 years and were locally ridiculed. However, in the 10 years it actually was full except for a narrow channel along one side.

The 9-inch rain of July 26, 1951 started the washing out of the fill on the north side of the dam, and the spring rains in the spring of 1952 left the dam in the condition seen here.

You can see the silt which filled the reservoir in the background with the new channel that the river is washing through it. The dam itself is to the left, the whitest area being the spillway.



# Army Record as a Farmer

**T**HAT it pays to practice conservation is again brought out in the Agricultural Lease Program 1953 Summary, recently published by the Chicago District, Real Estate Division, Corps of Engineers, U. S. Army.

The objectives of the Army's leasing program are designed to—

1. Provide that government-owned land be farmed according to accepted practices to improve fertility and prevent soil erosion.
2. Reduce government land maintenance costs.
3. Make farmland resources available for productive operation, thus contributing to the nation's food supply.
4. Obtain fair rental returns for the proper use of government land.

To carry out these objectives 5-year crop plans are developed for all land available for lease in the Chicago District. Such crop plans are designed to be consistent with the needs of the soil and in line with the basic objectives of the program. U. S. soil survey data, sample soil tests, research data available through the extension agents, the Soil Conservation Service, and the Army's land management plans, are all utilized in the preparation of farm plans which are made a part of the lease specifications on all land offered for lease.

Benefits to the Government resulting from this procedure for leasing Army lands to private operators totaled \$784,318.86 during 1953. This revenue was obtained from 66,123 acres of land on 12 Army and Air Force installations and 2 Civil Works Flood Control projects under the administration of the Chicago District.

Of the total government benefits, \$353,466.81 came from cash rentals, and \$158,764.22 came from soil treatments, which increase productivity and land values, but which are paid for by the operators of the land. The balance of the benefits realized by the Government from this program represent a saving in maintenance which would have been a necessary government expense if the land were not under lease, and operated according to a sound conservation farm plan. It is significant to note that the savings in maintenance costs showed an increase over last year in spite of a smaller number of tracts under lease and a consequently smaller total benefit to the Government. This indicates the enduring character of the conservation practices being followed and the cumulative benefits that follow over the years when land is used in accordance with its capabilities and treated in accordance with its needs.

A. M. HEDGE

**WIDE VARIETY ASSISTED.**—Bill Warren, SCS farm planner at West Springfield, Mass., has made a study of the records of 338 land-owners assisted by the Hampden Soil Conservation District. Of the total, 139 farmed part-time, and 199 were full-time farmers. There were 149 farms with more than 100 acres, 86 with 51 to 100 acres, 87 with 11 to 50 acres, and 16 with 3 to 10 acres. There were 179 dairy, 14 fruit, 21 poultry, 28 tobacco, 44 truck, 15 beef, and 71 miscellaneous enterprises. Some towns had taken more advantage of district services than others. There were 38 cooperators in Agawam, 6 in Southwick, 41 in Westfield, 42 in Monson, 15 in Ludlow, 13 in Hampden and 4 in Montgomery.

**DISTRICT PLANS NURSERY.**—Supervisors of Florida's Nassau Soil Conservation District have made arrangements with the county school board for the use of 50 acres of land in the county fair grounds as a nursery. The land will be used to improve and increase grasses, legumes, and shrubs useful in soil and water conservation.

**SAVES \$150 A DAY.**—Glenn S. Datson, dairyman and supervisor of the Orange (Fla.) Soil Conservation District, installed an irrigation-drainage system in line with better pasture management and cut his feed bill about \$150 a day.





*After four years of conservation farming, this is how the Nellie Thrasher farm appeared October 15, 1952, when Hermann Postlethwaite made this photograph. Situated a mile from Jefferson, Md., it was the scene of a widely publicized Maryland Conservation Field Day in August 1948, when it was the subject of a spectacular face-lifting. This is one of the farms visited during the bus tour of members of the General Federation of Women's Clubs, described in the article by Aimee Slye in this issue.*





**NOVEMBER**

**1953**

# **Soil Conservation**

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SECRETARY OF AGRICULTURE

**ROBERT M. SALTER**  
CHIEF, SOIL CONSERVATION SERVICE

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**WELLINGTON BRINK**  
Editor

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mailed to a single address

**HISTORICAL MARKERS.**—The Georgia Historical Commission is planning to place markers throughout the State to call attention to the locations of agricultural events of historic significance. In response to a request from J. C. Hilton, assistant to Commissioner of Agriculture Tom Linder, the Soil Conservation Service has suggested the following four locations for markers for events of historic significance in soil conservation:

1. Sandy Creek Demonstration Project—site of the first soil and water conservation work in the USDA erosion control demonstration program, and also site of the first Civilian Conservation Corps Camp assigned to work in the soil conservation program, with headquarters at Athens.

2. Coosa River Soil Conservation District—first soil conservation district organized in Georgia, with headquarters at Rome.

3. Early farm plantings of blue lupine in Dooly County, Ga., site of the Blue Lupine Festival. SCS encouraged plantings of blue lupine as a cover crop for peanut lands during World War II, when large acreages of peanuts were grown to provide fats and oils for war uses. Blue lupine has continued to be used extensively for winter cover throughout the lower South.

4. Log Cabin Jamboree in Hancock County, a southwide soil conservation event for Negroes conducted annually near Sparta.



**FRONT COVER.**—Ready for Thanksgiving are these turkeys on the C. J. Bevington farm, Mt. Vernon, Ohio. There's room for a variety of products that make for good eating on the modern conservation farm. Photographer: George Pace.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.



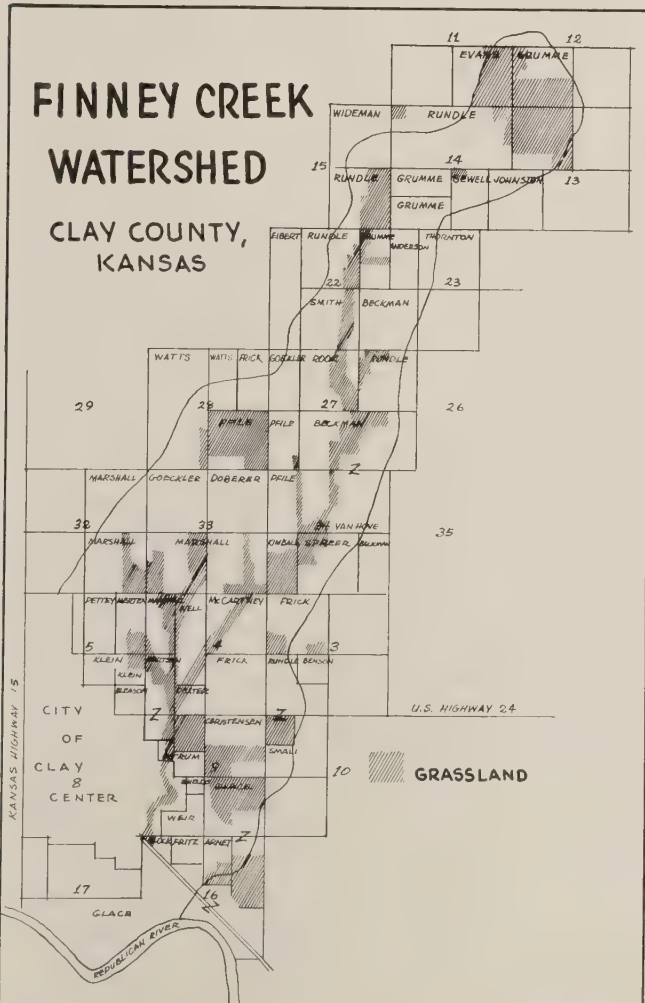
# Something Doing in Finney Creek Watershed

*"By setting goals as a group we will greatly speed up application of soil and water management practices," says Chairman Lyndon Rundle*

By DICK MANN

ONE of the most encouraging trends in Kansas agriculture these days is the voluntary and informal organization of farmers in dozens of small watersheds. Object—to solve their soil and water

NOTE.—This article is reprinted by publisher's permission from the *Kansas Farmer* for July 4, 1953.



This map shows area covered by Finney Creek Watershed. Farmers in the area have banded together to overcome their soil and water management problems.

problems together. A good example of what is taking place is found in Finney Creek Watershed, in Clay county. This small watershed is only 5 miles long, comprises about 8,000 acres and is owned by 48 landowners.

Several months ago Lyndon Rundle and a few of his neighbors in the upper part of the watershed got to talking about their mutual soil conservation problems. They were at a meeting in the Hayes Methodist Church, northeast of Clay Center.

As a result of this discussion, Mr. Rundle approached Earl Nichols, Clay County work unit conservationist, with a request that a meeting be called for farmers in the watershed area; and that someone from SCS be present to fully explain the watershed treatment program.

This meeting was held at the Hayes church on February 16, 1953. The area conservationist, B. K. Geraghty, of Manhattan, explained the watershed program and outlined advantages and disadvantages of a watershed organization. At the end of this meeting the 12 to 15 farmers who attended elected a steering committee to prepare a plan of action and a timetable. Lyndon Rundle was selected chairman, Roy Anderson and Jake Glace, members of the committee, and Earl Grumme historian.

This committee lost no time. On March 16, it met with Clay County Soil Conservation District supervisors to request recognition as a watershed group. The board of supervisors agreed to provide assistance and appointed Charles Down their representative in the watershed.

Next task for the steering committee was to prepare a schedule of major objectives in the watershed and a timetable for achieving them. Here is the outline they adopted:

All land treatment to be completed in 5 years (by



1958). Conservation needs to be determined as soon as possible.

1. Twenty-five percent of cropland in legumes—1,500 acres, by end of 1954.

2. All waterways established by end of 1956.

- a. All waterways surveyed and marked by end of 1953.

- b. All waterways shaped and seeded to cover by end of 1954.

- c. All waterways shaped and seeded by end of 1955.

3. All terraces having natural outlets available constructed by end of 1954.

4. All Class VI land established to perennial legumes and grasses by end of 1958.

The plan of action includes (1) making colored movies of the watershed annually to show progress; (2) establishing grass plots of adapted grasses (already done); (3) locating 2 rain gauges (already done); (4) erecting watershed boundary signs (already done); (5) preparing an historical record, and (6) district signs on each co-operator's farm.

A valuable first move was to call all landowners and tenants together in a neighborhood meeting on March 24. There soil conservationists explained the classes or types of land in the watershed and the capabilities of each class or type of land. Each farm then was visited by the group to look over water management problems firsthand.

Here is what farmers attending the March 24 meeting learned about their watershed. At present 1,764 acres in the watershed are in grass and 3,839 acres in crops. A breakdown of land classes disclosed there are only 624 acres of Class I land; 12 acres of Class II; 4,048 acres of Class III; 476 acres of Class IV, and 980 acres of Class VI. The other 600 to 800 acres to make up the watershed are in the city limits of Clay Center. This list shows bulk of land in the watershed is Class III. What is Class III land?" "It is land that needs intensive treatment with all the practices in the book to maintain fertility and prevent erosion," says Earl Nichols, work unit conservationist.

A further breakdown of the watershed area has shown farmers living in it exactly the condition the watershed is in today, and how far they have to go to bring it up to standard.

A total of 588 acres of contour farming is in force with 2,544 acres more needed; pasture seeding has been completed on 68 acres with 287 acres more

needed. This is all Class VI land that needs to be put back into pasture.

Five farm ponds have been built but 15 more are needed. A total of 25.5 miles of terraces have been built with 127.2 miles more needed. Fifty-six acres have been put into grassed waterways with 246 acres more needed. Five miles of diversion terraces have been completed and 1.6 miles needed.

Conservation rotations including temporary grasses are being followed on 1,088 acres with 2,307 more acres needed. No stabilization structures (for erosion) have been built but 19 will be needed. Also needed will be 12 detention dams.

Now, what advantage is there to organizing a watershed group like that of Finney Creek? The group is not organized under the new Kansas Watershed Law and is not legally bound to do anything.

Let some of the Finney Creek farmers tell you the answer. Says Jake Glace, farmer in the lower end of the watershed, and one of the early boosters for organizing: "When neighbors get together and talk over their soil and water management problems, then go out and walk over one another's farms to study those problems, they get an understanding they never had before." He referred specifically to 2 cases in which one neighbor, after learning the true situation, allowed an adjoining neighbor to dump terrace water on his pasture.

Earl Grumme, historian and farmer in the upper watershed, says: "What each individual does alone is just a drop in the bucket. But what we do together will amount to something and we can better see the results."

Lyndon Rundle, upper watershed farmer and chairman of the watershed group steering committee, says: "I believe by setting group goals and working toward those goals as a group we are going to greatly speed up application of soil and water management practices.

"Already," he says, "there is a much greater interest in conservation among farmers in the area than there was before we organized. By holding meetings, keeping a record of progress, and other means we can continue to stimulate that interest and keep it going at top speed."

We had a good chance to see some of the Finney Creek Watershed problems in May. We visited the watershed next morning after a 3.57-inch rain.

(Continued on page 82)





Effects of uncontrolled runoff on a cornfield in Finney Creek Watershed are discussed by Lindon Rundle, right, and Earl Nichols, Clay County work unit conservationist, following a 3.57-inch rain.





Corn culture reenacted by modern make-believe Pilgrims in garden of 17th century Howland House, a tourists' landmark.



# Conservation in the Land of the Pilgrims

*Since the days of Squanto, Massachusetts has come a long way in management of soil and water.*

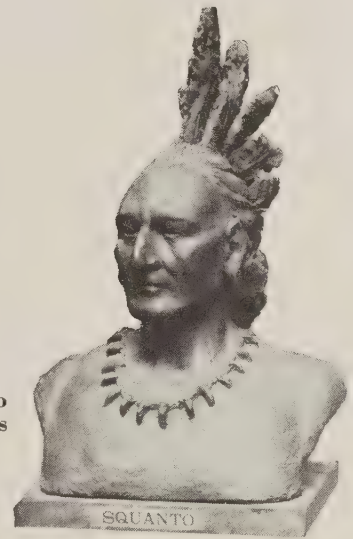
By ARTHUR B. BEAUMONT

THOUGHTS of the Thanksgiving season usually conjure up mixed visions of Pilgrims in quaint garb wending their way to church, bountiful harvests, and tables groaning under the weight of roasted turkey, cranberry sauce, and other delectables. But the first public thanksgiving was not like that. It was much more simple but probably more genuine than many that have followed. The natural resources of the "stern and rockbound coast" to which these Pilgrims had come were meager. Thrift, frugality, and conservation were essential for survival, and these homely virtues early became a part of their way of life and have been practiced by their descendants down through the years.

It was in the autumn of 1621 that Governor Bradford of the Plymouth Colony ordered his followers to observe a day of thanksgiving for the harvest. They had experienced a difficult year since they landed. There had been little to eat. The bitter cold of the New England winter had crept through the thin bark walls of their improvised huts. Sickness had taken a heavy toll, and there were many fresh graves of loved ones on the knoll above the sea. But now harvested crops would at least keep them through the coming winter, and they had learned how to take wild game. They were more optimistic about the future, and it was a time for thanksgiving if not rejoicing.

The men went into the woods and shot a number of wild turkeys for the dinner. A few friendly In-

Tisquantum, or Squanto, who taught the Plymouth colonists how to grow corn.



dians heard of the festival and brought in several deer. White people and bronze-skinned savages sat down and feasted together, and the colonists thanked God for His bounty. Happy circumstances had enabled them to grow a new kind of grain which, with the wild game, would keep them through the winter. They had stored a quantity of this novel grain, which they called Indian corn. It was a small-eared, vari-colored variety of maize, which the American Indians undoubtedly had gotten in the first place from Central America and had grown for thousands of years before the white men came to the continent.

It might have been attributed to Divine Providence that the Pilgrims found ready at hand a number of cornfields which the natives had abandoned. Pestilence and famine in previous years had decimated the Indian population along this seacoast. Too weak and emaciated after a hard winter to have cleared land for themselves, the colonists used these abandoned fields for their crops. Not only did they thus fall heir to ready-made fields, but they were fully as fortunate, if not more so, in having a good instructor at hand in the person of a friendly Indian named Tisquantum, better known as Squanto. Squanto has been dubbed the first county agent because he taught the colonists to grow corn.

Note.—The author is state conservationist, Soil Conservation Service, Amherst, Mass.



"Get fish and set with it," said Squanto when instructing the pilgrims in growing corn. To commemorate the Indian practice of fertilizing with fish, the Plymouth Antiquarian Society each year reenacts the scene where it first took place, the Harlow Fort House, Plymouth, Mass. Just when, where and how the Indians first learned that a fish buried with a kernel of seed would grow better corn, nobody knows. They never heard of such elements as nitrogen and phosphorus but they could grow corn. The run of herring up Town Brook gave them a ready supply of fish for fertilizer.

Little did Squanto realize or suspect that, by teaching the colonists to grow maize, he had opened a Pandora box of soil erosion ills. He could not have imagined that within a third of a millenium white men would be growing more than 3 billion bushels of corn on nearly 90 million acres of land and that unwise cultural methods would cause severe erosion on many millions of these acres. In-

dian cultural methods for corn, at least in Squanto's country, never caused any considerable amount of soil erosion. The aborigines had no plows.

Land of the Plymouth Colony eventually became a part of what is now Plymouth County, Mass. This county was not naturally endowed with fertile soils. Its upland soils can well be described by saying they need nearly everything but more sand. It is not surprising that the American Indians discovered that a fish in a hill of corn was a good practice on soils like these. To make and keep them productive, the best methods of management and conservation are now used. Today's farmers, using commercial fertilizer often blended with fish meal and tankage in the Indian tradition, have made the old Colony soils richer than they ever were originally. Modern conservation practices keep fertile soils from washing or blowing away.

In contrast to the upland sandy soils, Plymouth County has lowland organic soils of great value,



Sweet corn grown the conservation way on farm of Philip Trufant, in Plymouth County.





**Indian corn and wild cranberries occupy a prominent place in a Thanksgiving pageant. (Photo by Randall W. Abbott, courtesy of National Cranberry Association.)**

not because of their fertility but because of their adaptability to special use. These are the peaty soils on which cranberry bogs are built. Here, again, the American Indians enter the story, for it was they who taught the early settlers that cranberries were edible. The Indians made a tasty dish of dried venison and cranberries which we called pemmican. The Indians and the early settlers used the wild berries, but in 1816 it was discovered that the cranberry, or crane berry, as it was first called, could be cultivated. The first true cranberry bog was built on Cape Cod in 1846 and is still producing berries. Since that time the industry has been developed to the point where Massachusetts produces about two-thirds of the nation's cranberry crop and most of it comes from Plymouth County.

Although Plymouth County farmers, from colonial times on, handled their soils well and in many cases improved them to a high degree, there were losses from erosion. After the passage of the state's districts enabling act, farmers of the county were quick to realize that they could benefit from a soil conservation district, and so through the regular procedure of petition and public hearing a

district was established in 1947. During the 6 years of its existence this district has made a creditable record in the establishment of conservation and land improvement practices, many of which were needed to round out a sound program of soil management on many farms. Now, one can see in the landscape such conservation practices as contour planting, stripcropping, terracing, grassed waterways and cover crops. Also, technical assistance in problems of water conservation and management is supplied to cranberry growers by technicians of the Soil Conservation Service, working through districts.

Consider the accomplishment of Stafford Johnson, Bridgewater, the first cooperator who signed up with the district. Technicians of the Soil Conservation Service assisted Johnson in preparing a complete conservation plan of his 231-acre dairy farm. During the 6 years that have elapsed since the plan was prepared, all of the planned practices, with the exception of 1,250 feet of outlet ditches, have been established and Johnson intends to install these this year. He has established the following: 26 acres of contour stripcropping; 4,650 feet of outlets and grassed waterways; 76 acres of wet land drained by 1,350 feet of open drainage ditches;





**Cultivated cranberries on a modern bog in Plymouth County.**

40 acres of trees and stones cleared to permit better soil conserving cropping systems; 82 acres of pastureland included in a rotational grazing and management program, and 1,850 pine and spruce trees planted on non-agricultural land. He has installed an irrigation system for his hay and pasture fields, and visitors to the farm know that his alfalfa stands rank with the best in the state.

In these ways, on many farms, soil conservation is putting the new look on the old land where the Pilgrims first settled.

**WATERSHED TREATMENT GETS RESULTS.**—Reduction in muddiness of the Second Broad River, in Rutherford County, N. C., from 1,400 parts per million to 200 parts per million between 1936 and 1953 is attributed to soil conservation work in the watershed by Jess W. Honeycutt, who has charge of the Cliffside Waterworks in Rutherford County.

Daily charts kept by Honeycutt show the turbidity of the stream at the waterworks has continually declined over this 17-year period. This coincides with the soil and water conservation work that has been under way in the watershed.

"I am sure that soil conservation can be given a big part of the credit for clearing up the stream in this manner," Honeycutt told S. C. Walker, SCS work unit conservationist in Rutherford County.

## **FINNEY CREEK**

(Continued from page 76)

Finney Creek had been out of its banks in a flash flood and many newly-planted cornfields had been badly damaged. One field on the Grumme farm had been badly washed by uncontrolled runoff from poorer land on up the hillsides. At the lower end of this cornfield, where water empties into Finney Creek, water had cut back into the field some 30 feet, and at time of our visit there was a waterfall of 2½ to 3 feet expanding the damaged area.

Discussing this and other problems in the watershed, Mr. Grumme recalled he had lost more crops from wind erosion than from water, and that he intended to plant some windbreaks and make other improvements that will cut down all types of erosion.

We asked Jake Glace whether the district would need federal help when it came time to build the larger retention dams called for in the long-range plan. "I doubt it," he said. "I think farmers in the watershed can pool enough equipment to build them ourselves with little expense other than labor involved."

That's the kind of spirit organizing a watershed group seems to stimulate. Conservationist Nichols emphasizes one final important point. "All the desire and the push for such watershed groups should come from farmers within the area affected," he says. "If that procedure is followed, with technicians giving what help we can from the outside, the program is bound to be a success."

**REPORT FROM WEST GERMANY.**—A 147-page illustrated publication, No. 20, of the "Mitteilungen aus dem Institut für Raumforschung Bonn" contains part of the investigations on soil erosion and soil conservation that were carried out in Germany after 1945. These papers were originally read at the annual conferences of the 6th Committee (agricultural engineering, soil conservation) of the Deutsche Bodenkundliche Gesellschaft (association of German soil scientists) in 1950 and 1951.

Seven specialists contribute to the document: H. Kuron, P. Ehrenberg, H. Weber, W. Taschenmacher, L. Jung, W. Hannemann, and B. Grosse.

**SALES BOOSTED.**—In Wisconsin newspapers the phrase, "Under soil conservation plan last 5 years" is becoming common in many a farm-for-sale advertisement.



# Good Soil Management Pays

By A. M. HEDGE

FARMERS who desire to decrease soil erosion are frequently advised to include more grasses and legumes in their cropping systems. The question of most farmers is, "Does it pay?"

To get the answer to that question the Nebraska Agricultural Experiment Station recently studied 30 hilly farms, each comprising 160 acres, in Dakota and Dixon Counties, Nebr. The farms were ranked as to the percent of rotation cropland devoted to legumes and grasses. For purposes of comparison the farms were divided into two groups, which were called low-forage and high-forage farms.

It was found that the high-forage farms obtained on each average acre 5 bushels more corn, 5 bushels more oats, .3 ton more hay, and 255 more total feed units than did the low-forage farms. It should be noted, however, that feed production decreased on these farms when about 35 percent of the cropland was put into grass and legumes.

A careful check of these farms indicated the soils were about the same in the two groups. There was little or no difference in respect to the amount of conservation applied or fertilizer used. The difference in yield is attributed to the additional nitrogen added to the soil by increased acreages of legumes, reduced soil losses from erosion, less washing away of plant nutrients, and fewer ditches. The annual loss of soil is estimated to be about 20 tons more per acre on the low-forage farms. Furthermore, more feed was produced and fed to livestock on the high-forage farms, and more manure was spread on the land.

Does all this pay? Well, in 1950 the high-forage farms averaged \$834 more net income per farm than did the low-forage farms—a 51 percent increase.

The experiment station report concludes, "It should be remembered that the higher returns cannot necessarily be traced to any single factor. The differences in financial results were due to the *systems of farming associated with erosion control, not to erosion control alone*. Management skill is

also important. It's a question of the entire farm plan—the amounts and kinds of feed produced and how it is used."

This study will be of concern to any farmer who is pondering the question, "How much of my cropland can I afford to plant to grass and legumes?" Full details of the study are available from the Nebraska Agricultural Experiment Station, University of Nebraska, Lincoln 3, Nebraska.

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**TENANT SETS HIGH STANDARD.**—Jacob Krotje, Sussex County N. J., tenant farmer, who made conservation farming history 4 years ago when he agreed to operate a leased 135-acre Sparta farm the complete conservation way, has made good fully in his deal with the owner, Earl Price. In the process, Mr. and Mrs. Krotje have accumulated enough savings and built enough credit to buy a 200-acre dairy farm near Newton, N. J., where they are operating, of course, under a complete conservation plan made with Sussex County Soil Conservation District.

Price is pleased with the way Krotje kept his part of the deal in which he agreed to farm the place "in accordance with the directions and program of the agents in charge of soil conservation in Sussex County." The farm is in much better shape than it was when Krotje took over. Stone fences have been buried to facilitate stripcropping; fields have been rearranged to permit rotated grazing and stepped-up efficiency in the movement of men, machines and livestock. Where, prior to 1949, it was necessary to buy hay to carry the dairy herd, surplus hay was sold in 1952. Green Pastures contest honors were won 2 years ago. Furthermore, the Krotjes have presented to Milton Jager, the new tenant, a complete detailed record of their 4-years operation there. Mrs. Krotje kept them with extreme care, in accordance with specifications of the New Jersey College of Agriculture.

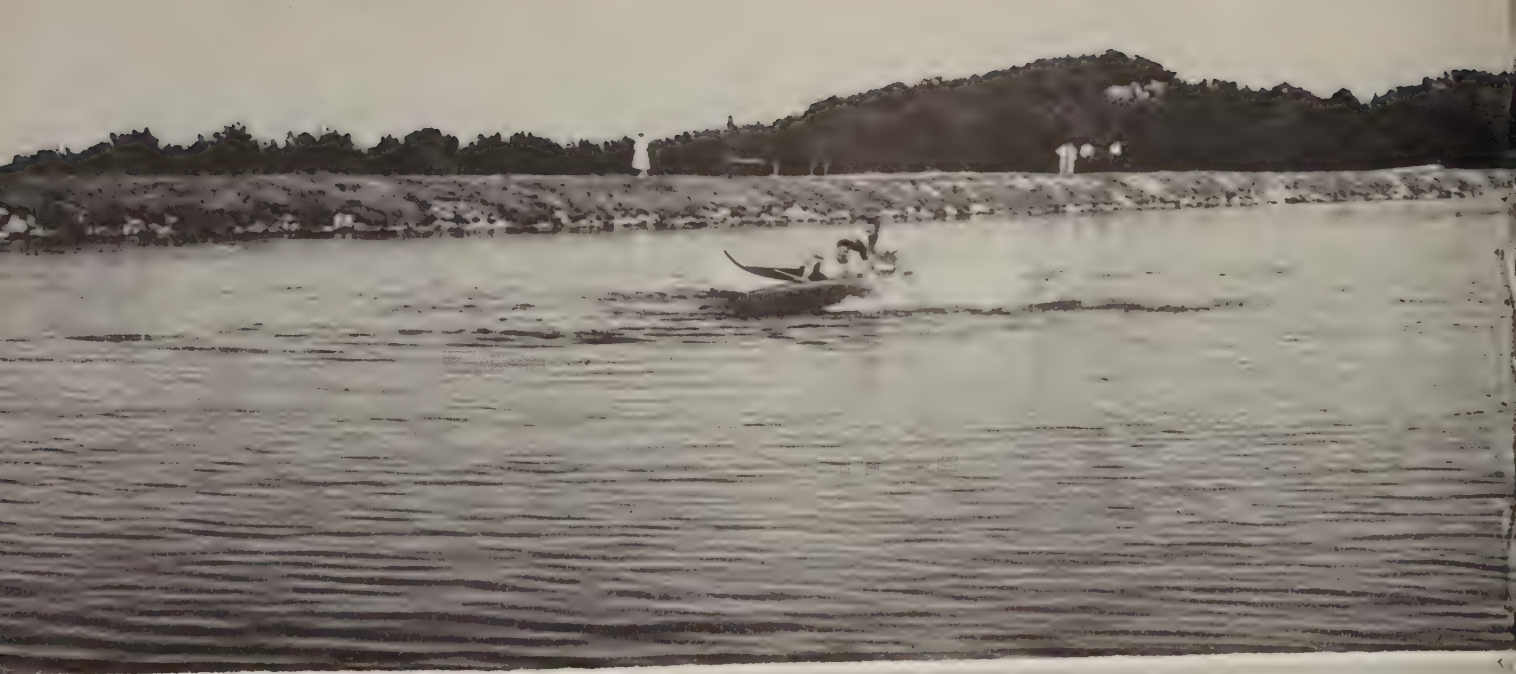
Their profits from 4 years of hard work enables the Krotjes to have a farm of their own, and to start operations with a 35-head herd—a nucleus for the 70 head they expect to carry eventually. Through the 4 years, according to Harry Slayback, extension soil conservationist in New Jersey, "The wide awake and generous way of farming that the Krotjes have followed has set a high goal for other tenant farmers." From their operations others than the Prices and Krotjes have benefited. Confidence in Krotje is found in his election as a Sussex County Soil Conservation District supervisor.

—HUGH F. EAMES


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Note.—The author is chief, project plans division, Soil Conservation Service, Washington, D. C.









The 840-foot dam in background was built by Dutchess County Soil Conservation District in cooperation with Fresh Air Fund, at a cost of \$90,000. It was paid for by voluntary contributions.

# “A Thousand Acres of Destiny”

*Fresh Air Fund gives tenement children an opportunity to get acquainted with basic resources of soil and water.*

DIRECTORS of the Dutchess County (N. Y.) Soil Conservation District and the New York Herald Tribune Fresh Air Fund joined hands July 25 to dedicate the 1,000-acre Sharpe Reservation near East Fishkill, N. Y.

About 400 persons attended exercises held in the center of the tract near the 25-acre lake, which is the first completed part of what Dr. Robert M. Salter, chief of the Soil Conservation Service, said would ultimately become a model land use development—“an example of using land within its capabilities and treating it according to its needs—a place where modern conservation farming methods are practiced.”

Speakers included Thomas E. Dewey, governor of the State of New York; Vincent Impellitteri, mayor of the City of New York; Kent Leavitt, Dutchess district director and former president of the National Association of Soil Conservation Districts; Dr. Salter; Whitelaw Reid, editor, New York Herald Tribune, and Frederick H. Lewis, executive director of the Fresh Air Fund. A paper prepared by Oveta Culp Hobby, Secretary of Health, Education and Welfare, who was unable to attend, was read by Mrs. Whitelaw Reid.

Also on the program were canoe races, demonstrations of camping skills, and induction of the speakers into the Six Nations Indian Confederacy.

Directors of the Fresh Air Fund, which is now in its 77th year of providing vacations to children of New York City tenements, have

The 25-acre lake is visited by men of Dutchess County Soil Conservation District, under whose supervision the land-use development of Sharpe Reservation is being carried out: Herrick Hedges, Pine Plains, George Culver, Millerton, directors; Henry W. Davis, SCS engineer; Kent Leavitt, Millbrook, director; Harold Wright, Pawling, chairman; Harold Klingaman, SCS area conservationist.



planned five camps for the area. Only one of them, for 72 boys in the 13 to 16 age bracket, is being operated now.

The conservation plan, under the terms of a cooperative agreement between the Fund officials and the soil conservation district, provides for proper use of each acre in the reservation.

Fifty-two acres, once farmed, will be returned to cropland under a stripcropping, diversion-terrace, and 5-year rotation system. A 9-acre contour orchard will be established. There will be 49 acres of hay and pasture land, complete with drainage terrace, stock water pond, living hedge fences, and conservation management. The 633 acres of woodland will be under conservation management, with protection against fire and grazing, improvement cutting, replanting and wildlife development. Sixty-six acres, including the lake, will be developed for recreation and as wildlife areas, with planting of game food and cover, and possible development of a muskrat marsh or a fish pond.

When the well-rounded conservation plan has been carried out, as Dr. Salter said in his talk, "The children of the city tenements who come to this part of the Fresh Air Fund camping system will be the beneficiaries not only of a wholesome, healthful vacation in God's great out-of-doors, but also will learn valuable, lasting lessons in the preservation of our basic resources of soil and water. No other lesson is more important for them to learn."

In 1952, according to Executive Director Lewis, the Fresh Air Fund sent 12,315 children to 6 summer camps and to private homes of 1,533 "Friendly Towns" in 13 northeastern states. The Fund received 18,974 individual gifts that totaled \$365,897. In 76 full years of operation, the Fund has provided vacations to 786,648 children.

Lewis, in explaining the objectives, pointed out that even organized summer camps in recent years have become hardly more than a repetition of city-type activities carried on in a country setting. "We have made a break with tradition," he said. "We have two unique opportunities. The first is to give children who have never had a chance to be treated as *individuals* that precious opportunity. The second is to expose them for the first time to the wonders of the natural world."

To achieve those two aims the Fund operates on what is known as a small group plan. No more than 12 campers live together, with their two coun-

selors, in families called "campsteads." Three campsteads make up a village and there may be several villages in a whole campstead. The basic life of the camper is his campstead. "No child is ever lost in the crowd in this type of living," said Lewis. "Each youngster has a definite role to play in his group, a sense of his individual importance, a place of his own in his community."

With small group camping, Lewis pointed out, where each individual is a participant and not



**Speakers at the dedication of Fresh Air Fund's Sharpe Reservation are inducted into the Six Nations Indian Confederacy and the Indian Defense League by Chief William Rickard, of the Tuscarora Nation. Placing hands on Wampum belt are Kent Leavitt, a director of Dutchess County Soil Conservation District and former president of the National Association of Soil Conservation Districts; Thomas E. Dewey, governor of the State of New York; Vincent R. Impellitteri, mayor of the City of New York; Dr. Robert M. Salter, Chief, Soil Conservation Service; Whitelaw Reid, editor, New York Herald Tribune and president, Fresh Air Fund, and Frederick H. Lewis, executive director of the Fund.**

merely a spectator, each youngster has a real chance to develop first-hand acquaintance with the exciting details of the natural world by doing things himself. "In this atmosphere the urgent problems of natural and human conservation stand a chance of ultimate solution by those who soon will be carrying the responsibilities of the world," Lewis said.

Soon to rise around the lake, heart of the land use project, will be additional camps for needy children, in all, a million dollar program. As Lewis said, for the thousands of boys and girls who will come this way, Sharpe Reservation may well be "A Thousand Acres of Destiny."



# 20 Years of Showing the Way

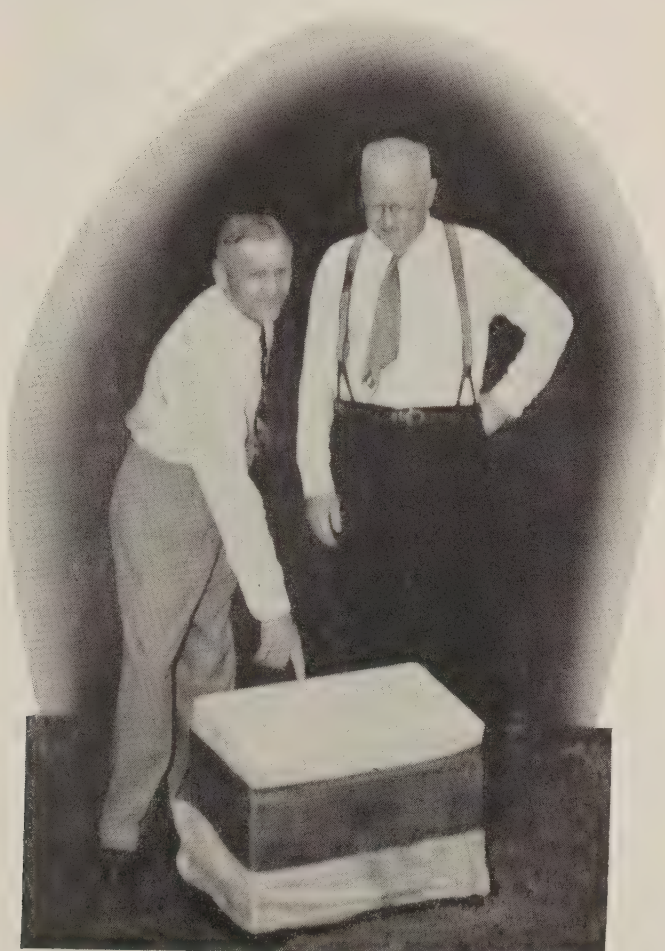
*Celebration held to commemorate establishment of world's first large-scale watershed erosion control demonstration.*

By LEWIS C. FRENCH

COON VALLEY, nestled in the hills of the western Wisconsin coulee region, became an historic shrine of modern soil conservation this summer when its residents celebrated the 20th anniversary of the Coon Valley erosion control demonstration project.

Established in October 1933, it was the first of a series of similar demonstrations set up by the newly-organized Soil Erosion Service in the princi-

Note.—The author is farm editor of the *Milwaukee Journal*.



Ed Kerska, chairman of the celebration, shows Dr. Bennett a marker proclaiming Coon Valley as the first site of an erosion control demonstration project.

pal geographic and agricultural sections of the country.

"The Coon Creek project was the first large-scale soil conservation watershed demonstration ever carried out by man," Hugh H. Bennett declared at the anniversary celebration July 19. The Vernon County Historical Society placed an appropriate marker in the small community park in the village.

Hundreds of farmers whose land and homes are in the coulee county turned out to pay tribute to the bold men who had acted in time to save their land.

Dr. Bennett, former chief of the U. S. Soil Conservation Service, the man who curbed the dust storms of the thirties, came back to see the results of an idea he tested earlier to save the coulee country of the Mississippi watershed.

For a full day the "chief" rode through the country, now in its full colorful harvest glory. This time, rather than eroded and barren slopes, he could see contour strips of lush corn, the contrasting gold of the oats and barleys and green grass with woodlots on the ridges. He called it "the most beautiful sight in the world."

In his work as a soil expert sent around the globe to cure famine, Bennett has seen how neglect and erosion stripped the Holy Land of its fertility, ruined the old Nile Valley and stripped Italy and Spain of its once rich soil.

Bennett came to Wisconsin in 1927 and looked at the Mississippi Valley watershed. The land had been tilled and plowed only 70 to 80 years, yet its slopes were already being washed skin-thin of soil with deep gullies creating a thousand small editions of the Grand Canyon.

Bennett jumped to the task of stopping this and other national erosion. Soon after, the LaCrosse Erosion Experiment Station was set up on Granddad's Bluff overlooking the Mississippi River. Con-



gress appropriated 5 million dollars, more as a make-work measure for the depression than with hope that the erosion problem could be solved.

It was then that Noble Clark and others of the University of Wisconsin walked into Bennett's new office at Washington, D. C.

"When I was made Director of the Soil Erosion Service, which in 1935 became the Soil Conservation Service, I was the only man in its employ," Bennett said. "We had very few friends. Our life was predicted as being limited. As I sat alone as the first employee of the organization, Clark was one of my few callers. During our visit he and I agreed that the maintenance of productive land is dependent upon proper land use and the application of soil conservation practices as needed. Clark's support and encouragement was a big help to me in pursuing the objective which we see in effect on the land all around us."

There were 92,000 acres in the valley and 815 farmers. Carefully chosen men were thrown into the task, because thousands of farmers in the Upper Mississippi Valley would be watching. In 2 years the project had laid the groundwork by signing agreements with over half the farmers. From then on the work progressed and the valley is now a showplace for conservation.

The Genoa ridge section of the valley tells a

story which is typical of others. It was farmed mainly by Italian immigrants who came to fish in the Mississippi and to work on the railroad as section hands. With hard times, few fish and no jobs, they took to farming on the slopes.

The soil conservation technicians had a difficult time convincing these Italian farmers to plow across the slopes rather than up and down and to fashion their fields in strips to the contours and not plant solid fields of corn and grain on the slopes.

"The men who helped on this demonstration, proving it here, carried the application around the world," said Ralph H. Musser, regional director of the Soil Conservation Service. "The same thing is going on in Burma, Formosa, Korea and even Alaska."

Soil conservation, as proved in this valley, has added millions of acres to soils that really produce the bumper crops.

Bennett sees a potential of 650 million acres of high production under soil conservation. That is more than 3 acres per capita, for more than 200 million people.

Having placed a marker at the base of the park flagpole, the Vernon County Historical Society plans a larger monument near the main highway. The whole valley is proud of something a lot of people doubted just 20 years ago.



At celebration: Ralph H. Musser, H. H. Bennett, and Joe Stromstad, Coon Valley farmer and early cooperator.



## DISTRICT PROFILE

### SOLOMON HOKE of MARYLAND

UP UNTIL a few years ago there was a dump cart on the old Bachman Farm in Bachman's Valley, Md., which was used to haul topsoil back up the hills. There is no longer any need for such equipment since Solomon Hoke helped to organize the Carroll Soil Conservation District in 1934. Now, 90 percent of the 120 farms in Bachman's Valley are cooperating with their soil conservation district in applying sound soil and water conservation practices.

Sol Hoke is Pennsylvania Dutch. He first lived in York County and then in Adams County, Pa. In 1930 he moved to his present livestock farm in Carroll County, Md. Sol says that he never had thought seriously about the importance of soil conservation until a few years ago when he and Mrs. Hoke were traveling to the Lancaster Stockyards soon after a cloudburst. They came to a spot in the road where two fields of approximately the same degree of slope drained down toward the road. One field was planted solidly in tobacco, the other was in corn, wheat, tobacco, and hay in strips on the contour. All of the topsoil from an area 100 feet wide had washed onto the highway from the solid tobacco field. The other field had lost very little topsoil.

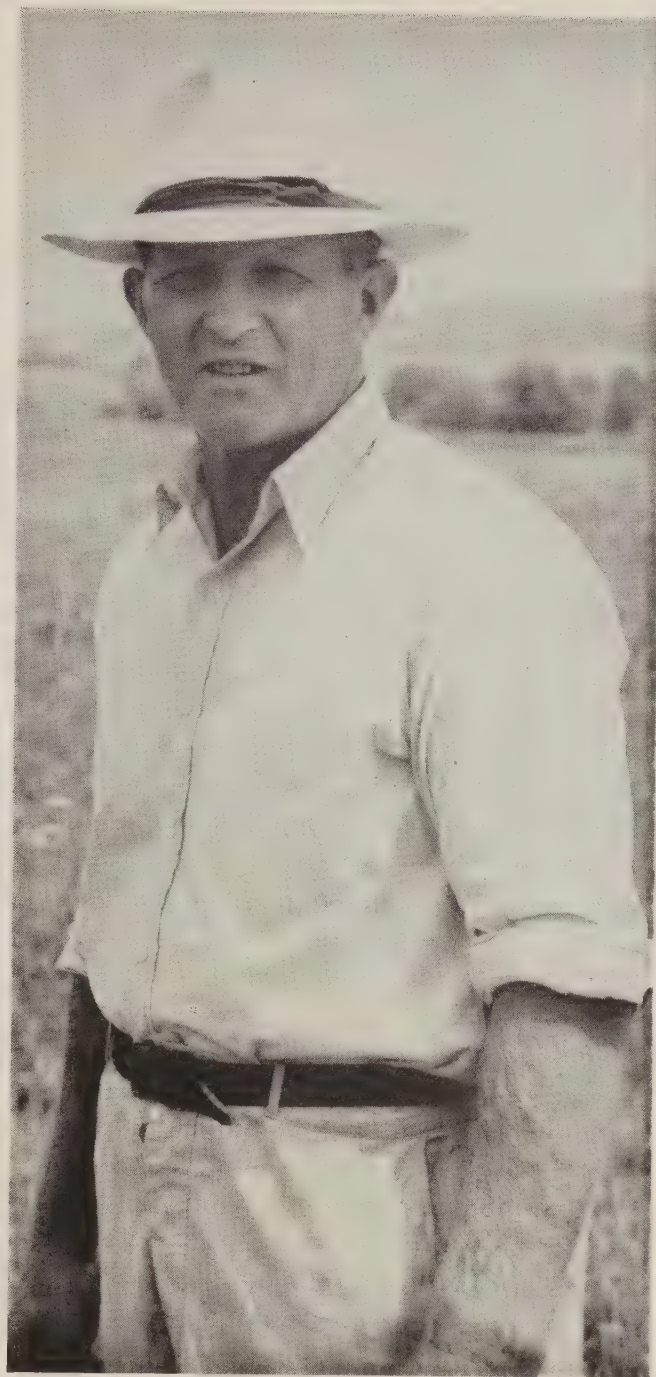
Sol decided at that moment that there must be something to this contour method of farming. So he went back home and was the first farmer in Bachman's Valley to lay out contour lines for stripcropping.

Sol Hoke has been a member of the board of supervisors ever since the Carroll Soil Conservation District was organized in 1944.

He has been active in the Farm Bureau since 1925, having served as a member of the National Livestock Committee for several years.

He is president of the Frederick Production Credit Association which serves four Maryland Counties.

He is also a member of the National Advisory Committee of the Federal Land Bank, and always plugs soil conservation practices at committee meetings.



**Solomon Hoke.**

In addition to being a member of the board of supervisors of the Carroll Soil Conservation District Sol Hoke is president of the Monocacy River Watershed Council. This is an organization involving three counties in Maryland and one county in Pennsylvania. In the summer of 1952 a sub-watershed conference was held in the Deep Run-Big Pipe Creek Watershed. Sol Hoke presided at

(Continued on page 94)



# So Soft the Rain!

By ROBERT S. JONAS

**C**ONVERTS to stripcropping sometimes come slowly. Often this is because they object to the type or width of strips recommended by SCS technicians who cooperate with farmers in soil conservation districts. Some object to contouring because they think it will be more difficult to handle the land and the crops. At other times, they object to the width of strips, want them wider—say, 150 feet when the technicians recommend only 100 feet.



**Strips on Robert Glor farm.**

Then, after years of observation, they see that the 100-foot widths give better control of erosion and runoff and permit wider use of the land. So they change their minds and find that it pays.

Take the case of Robert F. Glor, well known farmer of Attica, N. Y. In 1935 he bought a farm for his son Donald. It was 3 miles from the CCC Camp at Attica and was badly eroded and robbed of fertility by loss of topsoil. Glor thought the CCC technicians could do the farm no more harm, so he asked Hugh Wilson, the camp's farm planner, to help him make a conservation plan for all of Don's acres.

They agreed on everything except the width of strips. Wilson recommended 100 feet. Glor held out for a width of 150 feet and when they could not agree, the whole project was dropped.

Several months later, Wilson went back to Don's farm and decided to take a chance on 150-foot strips so they could get the whole plan established on the farm. "When you see how much good we do this farm, you'll have us over on your home farm to lay out 100-foot strips," he said.

Two years after the complete plan had been put in effect at Don Glor's farm, Hugh Wilson's forecast came true. Bob Glor's farm was planned at Bob's request and the strips were laid out and plowed in at 100-foot widths. "I probably won't be able to work that bottom strip," said Bob, "It's always been plenty wet, even with furrows running through it for drainage." Much to his surprise, however, the stripcropping and diversion ditches made the bottom strip just as productive and just as easy to handle as any of the strips higher up.

For several years after he started stripcropping, Bob Glor recalls, he had an idea that it was not raining so hard as in previous years. Then one morning, awakened by the sound of rain falling on the roof, he suddenly realized that he had always measured the intensity of a downpour by the sound of water running down the bean rows. With everything in contour strips, there were no unbroken steep slopes for the runoff to charge over—no sound of rainfall! It was raining fully as hard as in earlier years, but the rains were being soaked up and were helping his crops, not washing his topsoil away.

Today, Donald Glor is doing most of the work on the two farms the conservation way. Lately he has purchased a third farm, next to his original acres. He has extended his agreement with the Wyoming County Soil Conservation District so that one plan covers his two farms. Strips have been extended across both farms, and in that process some of the 150-foot-wide strips have been reduced to an average of 100 feet.

Bob Glor, while no longer very active in farming, sees a lot of conservation farming as he travels around Wyoming County as a representative of a Buffalo newspaper. Donald is an outstanding farm leader. He's active in many neighborhood groups and is a member of the Wyoming County Farm Bureau executive committee.

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**FIFTY FOR ONE.**—Cecil Attaway, Bleckley County co-operator in the Central Georgia Soil Conservation District, estimated that terraces constructed in his district program saved him during a series of heavy rains a minimum of \$1,000 in replanting costs. "This does not include the saving of soil which would have been a far greater loss," Attaway said. "Seed and fertilizer can be bought, but topsoil washed away is lost forever. I value my terraces at \$50 to \$100 for each dollar spent in their construction," he concluded.

Note.—The author is work unit conservationist, Soil Conservation Service, Rochester, N. Y.



# Avoid Waste When Cutting Trees

By MELVIN L. RIGDON



E. W. "Jiggs" Morris and Wallace Kohler watch Loyd Burnett, of the Soil Conservation Service, bore into tree to check its rate of growth.

**T**AKE it from E. W. "Jiggs" Morris of Oregon's Josephine County, owners of farm woodland tracts can make timber-cutting pay off these days if they do it the conservation way.

Morris should know. He's made tree-farming a lucrative business on his place in the Illinois Valley Soil Conservation District. He's just started a

salvage-cutting of some 100 acres of logged-off land, an enterprise he hopes will work into a full-time job.

But Morris says wasteful logging plus poor woodland management are gouging into tree farm profits, and must be replaced with selective cutting if farmers are to get a full measure of profit.

Too often, he says, logging operations leave nothing but stumps and unmarketable hardwoods.

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Note.—The author is soil conservationist, Soil Conservation Service, Cave Junction, Oreg.



"That shouldn't happen to any farm woodland," he points out.

With help from technicians of the Soil Conservation Service and the district board of supervisors, Morris has worked out a long-range timber-cutting program. He logs the stand first to remove culls,

says, offers a ready market for woodland owners. He can pay \$2.50 per cord for oak and laurel, cut the wood himself, and still make a good profit on charcoal.

He makes this observation on tree-farming: "Many farmers who agree that our timber should



**Lloyd Burnett, technician, E. W. Morris and Wallace Kohler, farm woodland owners, check distance between trees for proper spacing in relation to diameter.**

old wolf trees, conky, and some hardwood trees, to clean up the stand and to give young trees growing room.

He plans to take over several farm forests and farm them on a sound management basis to provide year-around work.

There's a ready market for a large amount of salvage timber according to Morris. For example, he has found an outlet for around 8,000 hop poles at 85 cents each and car stakes at 45 cents. He cuts such waste timber products out of the tops of trees or from pole thickets that need to be thinned. Such products, he explains, add a lot to his woodland income. Making use of waste slashings reduces the fire danger.

Morris has also found a good outlet for his large supply of salvage fir and hardwoods in the production of charcoal. He has one kiln operating and two more are due to go in this winter. Charcoal, he

be managed for alltime are holding their own timber too long before the first tree harvest.

"Timber stands will produce a lot more if they are properly managed, the way our soil conservation district supervisors are recommending. Nature needs man's help to raise maximum tree crops."

Another Illinois Valley farmer, Wallace Kohler, expects to begin selective cutting of 200 acres of woodland by next spring.

He'll do most of the logging with a team because, as he says, "I've seen too much damage to forest soils, young plants, and old and young trees from machine logging."

Some of his forest holdings, which have been logged with heavy equipment, show the worst for wear. On the other hand, Kohler thinks horse-logging keeps damage to a minimum. The skid roads he is laying out are for years of use.

(Continued on page 94)



# Revamped Water System

**A**S A RESULT of a complete reorganization of his irrigation system, production of feed for his livestock was doubled last year according to Reed Gappmayer, rancher in the Upper Wallsburg Valley near Heber, Utah. He also reports a saving of one-third of his time in irrigating through better control of the water.

Prior to the installation of the new system, Gappmayer was irrigating about 65 acres of high bench land from a winding ditch that traveled about 4 miles to bring water from the left fork of Hobble Creek to the farm. During the irrigating season Gappmayer had to ride horseback for 2 to 3 hours each time he needed to regulate the water flow at the head of the ditch.



**Gappmayer at outlet-control structure of storage reservoir.**



**Gappmayer admires his new canal where it heads into Hobble Creek. Only a half mile long, it replaces one that extended four miles.**

By early June irrigation water in the creek usually became so low that most of it was lost by evaporation and seepage before reaching the land to be irrigated. Too, the small stream that did reach the farm could not be used efficiently.

Gappmayer called upon supervisors of the Wasatch Soil Conservation District for help in devising a plan to get more irrigation water to his farm for a longer period of time. DeWitt Grandy, Soil Conservation Service representative working with the Wasatch district, assisted Gappmayer in developing a conservation program for his land based upon needs indicated by the land capability survey made by SCS technicians.

As the first step in applying the conservation plan, the route for a canal from the left fork of Hobble Creek to Gappmayer's farm was surveyed on grade. The engineers found that only slightly more than a half-mile of canal would be needed to deliver irrigation water from the creek to the farm.

Next, an overnight storage reservoir was constructed on the farm at the end of the canal. Now, when the creek is low, the small flow of water can be stored in the reservoir until there is enough to provide a stream large enough for irrigating. The reservoir was constructed in a clay loam soil which Gappmayer says, "Holds water like a dishpan."



The reservoir and canal were built with heavy equipment the use of which was arranged by supervisors of the Wasatch district.

The saving in time formerly required for irrigating the high bench land now is giving Gappmayer more time to devote to carrying out a complete conservation program on the rest of his land. This includes clearing brush, leveling, planting of adapted pasture and hay mixtures, and applying the proper amount of irrigation water.

Gappmayer says he is extremely interested in making the best use of his soil and water resources because, as he puts it, "This ranching job is a long-time proposition." The irrigation system improvements also give Gappmayer time to pause occasionally and enjoy the grandeur of the mountains surrounding his ranch.

## WHEN CUTTING TREES

(Continued from page 92)

Kohler looks at it this way: "Farm forests should be cut for steady cropping. Farmers can't afford to pay taxes on land that does not produce, and much land is good only for growing timber.

He says Christmas tree cutting is causing a lot of damage to woodlands the country over. Generally, trees up to 6 inches through are cut and the top 8 feet taken for Christmas trees, leaving the rest waste.

"If farm woodland timber were properly managed," Kohler contends, "such cuttings would be made when trees are 8 to 10 feet high and thus not waste marketable poles and many years' growth. Proper thinning by selective cutting of Christmas trees would help trees grow at their maximum rate. Later, poles can be taken out, and another thinning made in a few years."

## SOLOMON HOKE

(Continued from page 89)

this conference at which farm men and women conducted a panel discussion which helped considerably to speed up conservation work on the watershed. During the conference, Jim Shriver, on whose farm the meeting was held, stated that his farm was not being flooded by the streams overflowing their banks as it used to be. Sol Hoke replied, "That is easily explained. We fellows upstream are keeping our water under control, not letting it run off rapidly into the streams."

Sol Hoke says that the assistance of State and Federal agencies in carrying out a soil conservation district program is imperative. Recognition of the problem on the part of the Extension Service, for example, has helped to sell conservation to the farmers of the district. And technical assistance provided by the Soil Conservation Service has been invaluable. Hoke observes, however, that "The only way the job is going to get done is by local men and women in their own communities."

—FRED L. BULL

**BRAND NEW AWARDS PROGRAM.**—Creation of an annual \$5,000 awards program for professional contributions in the field of conservation of natural resources was announced today by George W. Mason, president and chairman, Nash-Kelvinator Corporation. Recognition will also be given to non-professional contributions.

The nationwide program will be known as "Nash Conservation Awards." Cash awards of \$500 each will be presented to 10 professional conservationists, working in education, research, administration or enforcement, in any field related to soil, water, forest, fish or wildlife conservation. In addition, 10 awards consisting of plaques and citations will be given to non-professionals whose contributions have been performed as acts of good citizenship.

"The real sportsman has prize enough in his big musky or record grizzly, but there should be greater recognition for those who are devoting so much to the cause of conservation," Mason said, "We hope these awards will serve as a reminder to all of us that conservation today is a science, and without expert conservationists there would soon be no fish or game left. It is also important to stress the fact that all phases of the problem are related—including soil, water, forest, fish and wildlife conservation."

An enthusiastic fly-fisherman, Mason for years has been active in conservation programs. He is a long-time director and treasurer of Ducks Unlimited.

Nominations for awards are to be made by newspaper rod-and-gun and conservation editors, rod-and-gun clubs, and public and private conservation agencies. Final selections will be made by the Awards Committee, which for 1953 consists of Ed Dodd, creator of Mark Trail; Pieter Fosburgh, editor of the *New York State Conservationist*; Johnny Mock, outdoors editor of the *Pittsburgh Press*; Alastair MacBain, of the U. S. Fish and Wildlife Service, and Michael Hudoba, Washington correspondent and authority on conservation legislation.

This year's awards will be presented at a dinner in Washington, D. C., January 1954.

**COAL COMPANY COOPERATOR.**—Just about everybody is calling on soil conservation districts for assistance. Latest cooperator with the Letcher County Soil Conservation District in Kentucky is the Marlowe Coal Company. They will plant a minimum of 25,000 trees in 1954, A. B. Rogers, area conservationist at Hazard, Ky., reports.



**MID-CENTURY CONFERENCE.**—With the appointment of an over-all steering committee and the selection of 8 major areas for discussion, the structure of the Mid-Century Conference on Resources for the Future—a nationwide forum scheduled in Washington for December 2 to 4—is nearing final form.

The Mid-Century Conference has been called by Resources for the Future, Inc., a non-profit corporation for research and education in the field of natural resources. The agency has received a grant from the Ford Foundation for conducting the conference.

Norvell W. Page, conference director, announces that Conference Chairman Lewis W. Douglas has appointed 16 persons to a steering committee on which the many elements actively concerned with natural resources are represented. Plans call for adding one or two more members to the committee.

Included are representatives of the industries that extract, trade in, and use raw materials, along with representatives of conservation organizations and groups interested in long-range problems bearing on resources.

R. G. Gustavason, president of Resources for the Future, Inc., makes the following observation, "Since the conservation movement was launched under Theodore Roosevelt a half century ago there have been many separate studies and meetings of industrial and conservation groups. Now it is proposed, for the first time on so large a scale, to bring them together in a single meeting to look at the resources problem as a whole and to endeavor, through study and discussion, to point the way to mutually satisfactory solutions."

**GRASS-VEGETABLE ROTATION.**—The Atlantic Land and Improvement Company in the Hendry Soil Conservation District, Fla., has started a grass-planting program on their fields, to be followed by vegetables again in several years. Formerly fields were often abandoned to common bermuda or carpetgrass. The Florida Experiment Station has done several years' work along this line with Pangola grass and helped the company set up several hundred acres for grass-vegetable rotation. At suggestion of the Soil Conservation Service, they are also putting in 50 acres of Pensacola Bahia grass to be tried in a rotation.

**CAN ANY BOARD BEAT THIS?**—For length of service, the board of supervisors of the Kiamichi (Okla.) Soil Conservation District has perhaps one of the longest unbroken records in the nation. Four of the five members have been serving the full 14 years of district operation. They are Clarence Adams, R. L. Cook, H. A. Barnett and C. E. Barnhill.

Adams farms 370 acres. He is primarily a livestock farmer, raising sheep, cattle, horses, mules and hogs. Among his crops are popcorn, sericea lespedeza and native meadow. He specializes in bermuda pastures with overseeding of various winter clovers, including crimson clover. Some sericea and Dallis grass are in his pasture.

Cook has 1,600 acres. He lives in town but supervises his farm. He has extensive pastures of bermudagrass and

clover, and Dallis grass and fescue. He has cleared large acreages of Red River bottom land and drained various areas. He maintains some native grass meadow. Angus cattle are his chief output.

Barnett lives on a farm of 78 acres on which he has 6 different kinds of pasture. Most of it is in bermuda.

Barnhill is an active farmer and rancher, and also has other interests.

The time these men have served their fellow farmers emphasizes their deep interest in the soil and the work of the soil conservation districts.

**IOWA FARMERS HONORED.**—Plans for a statewide recognition program to honor Iowa farmers for outstanding achievement in soil conservation were announced recently. Sponsors are the Des Moines *Register and Tribune*, the Iowa Association of Soil Conservation Districts, the Soil Conservation Service, the State Department of Agriculture, the State Soil Conservation Committee, the Iowa Agricultural Extension Service, and the Iowa Chapter of the Soil Conservation Society of America. There will be recognition of winning farmers in each district. District winners will compete for sectional honors and sectional winners will compete for top state awards.

**ON CONTOUR TOO. NO DOUBT!**—Cows roaming over broad expanses of green fields may become a thing of the past under a new system of strip grazing being developed at the University of Wisconsin.

Vic Buralow and Henry Ahlgren, agronomists at the university, believe strip grazing will eventually eliminate many shortcomings of present pasturing practices.

Here's how the system works:

For an average-sized herd, a 20-to-25-acre grass-legume pasture is divided into strips separated by electric fences. The strips may be 1, 2 or 3 acres in size.

As many as 25 cows are turned into a single strip, and kept there until they have cleaned up the pasture in that section—usually not more than 3 days. Then they are moved to a fresh strip.

By the time the cows have made the rounds of all the strips (about 20 days), the first pasture is usually up so they can start around again.

Ahlgren and Buralow say the method has one big advantage. Where cows roam over an entire pasture some of the forage always gets mature and tough, and a dip in milk production results.

If the cows are given only a small section at one time, they eat everything and make maximum use of pastures. Fresh pasture every few days keeps production up.

But, the agronomists add, strip grazing may require new methods of pasture management. To maintain a desirable stage of growth, some strips may have to be harvested as grass silage or hay. It isn't practical to fence off all the strips at once, so fences will have to be moved every few days. This hasn't proved to be much of a job, though, where electric fences are used.

Heavier fertilizing may be needed on grass-legume strip grazing pastures, they add, especially top dressings with a potash fertilizer during the grazing season.



# KINGSBURY COUNTY SOIL CONSERVATION DISTRICT

BOX 387

PHONE 235

DE SMET, SOUTH DAKOTA

July 23, 1953

Mr. Wellington Brink  
Editor, SOIL CONSERVATION  
Soil Conservation Service  
Washington, D. C.

Dear Mr. Brink:

Writing letters to you seems to be becoming an annual affair with us. However we thought that you would be interested in knowing that for the fifth consecutive year we are purchasing subscriptions for our new cooperators.

This time we have ordered 106 subscriptions, bringing our five year total up to 576. We consider the money spent on this project of ours a good investment.

Sincerely yours,

Roland Leonhardt, Chairman  
Kingsbury Soil Conserv. District

/s/ Harold C. Fritzel

By: Harold Fritzel, Treasurer

"Use each acre according to its capabilities and treat it according to its needs."



*December 1953*



**Soil Conservation**  
OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE



# SOIL CONSERVATION •

DECEMBER 1953

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**EZRA TAFT BENSON**  
SECRETARY OF AGRICULTURE

**ROBERT M. SALTER**  
CHIEF, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE  
U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

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**WELLINGTON BRINK**  
Editor

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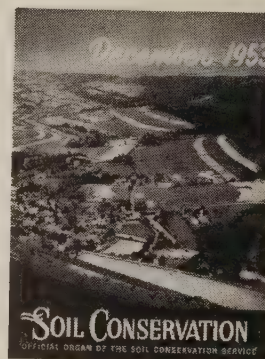
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**COURSE IN LAND JUDGING.**—Special training in land judging was recently undertaken by San Luis Obispo high school students on the California State Polytechnic college farm.

Junior and senior students, under direction of their agricultural instructor Jim Williams and cadet teachers Maurice Fleming and Michael Furst, observed Dr. Logan Carter, soils department head, demonstrate methods of land judging.

The object of the course was to develop the ability to select and judge land and use it according to its capabilities. Observers had previously studied basic principles of soils in their high school agricultural classes.

During the special demonstration a 5-foot pit was dug to show soil properties. Score-card evaluation sheets, similar to those used in Future Farmer of America livestock judging competition, were used.



**FRONT COVER.**—A view of Stone Valley, a complete 2,000-acre watershed, Dalmatia, Pa. At the time this picture was taken, conservation practices were about 90 percent established: steep hillsides in pasture, rim of valley in timber, sides of valley farmed in strips under a 4-year rotation of corn, oats, wheat and hay, diversion ditches and grassed waterways where needed. Dalmatia is a prosperous community of Pennsylvania Dutch. Photograph by Hermann Postlethwaite.

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# The Story of a Wise and Dedicated Man



Houser Davidson's home, Peach County, Ga.

By LOUIS REID

LAST summer a group of Central European exchange students stopped for a look at soil conservation work on the Houser Davidson farm 6 miles east of Fort Valley in Peach County, Ga.

Through their interpreter, Davidson told them he used conservation methods both because they made him money and because he felt it was the right way to farm if you had any sort of regard for your soil. He went on to tell them something of his yields—he averaged 100 bushels of oats an acre for one year on 190 acres, excellent for his section.

One of the students, interested in soil science, kept scooping up handfuls of the rich red sandy loam and sifting it through his fingers, all the while shaking his head and wrinkling his forehead.

Finally he turned to the interpreter, spoke rapidly in German. "He wants to know," Davidson was told, "why—since your soil conservation work makes your soil so good and gives you such high yields—your country doesn't make all farmers operate as you do."

Davidson whirled on the youth. "Tell that young man," he instructed, "that in this country we think a lot more of our freedom to farm as we want to than we do of our soil."

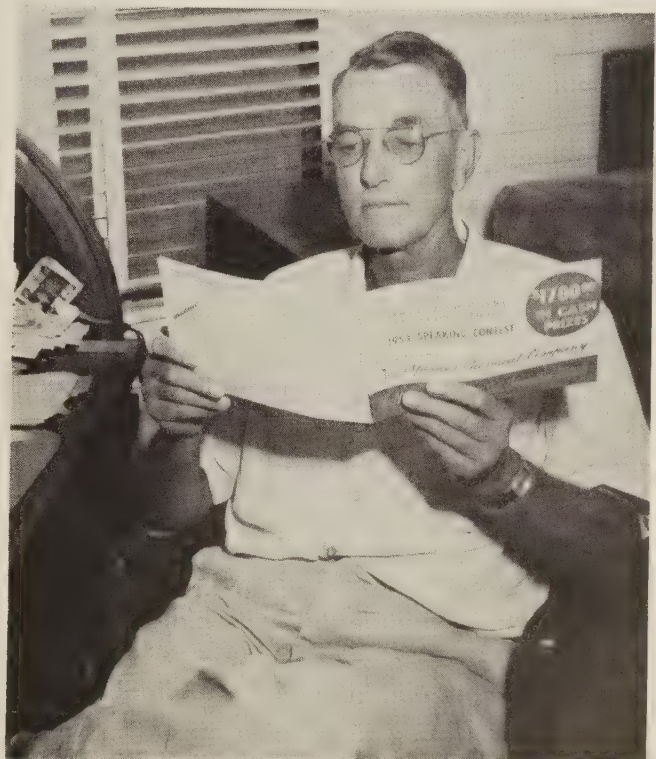
We heard the story and decided Houser Davidson was a man to know; we went to Central Georgia to see him. After we toured the farm we

*His acres are well legumed and his duty to his fellow man is well discharged. Houser Davidson feels that conservation farming not only makes better soil but also better citizens.*

shared the young exchange student's conviction that everyone could profit from farming as Davidson does . . . if the job is done voluntarily.

Davidson, a tall, taut 53-year-old man, is coming pretty close to an ideal. He's farming according to the capabilities of his soil. He's putting every acre to the best permanent use he knows for it.

Davidson has 1,100 acres of nearly level land, highly productive. Those acres are capable of making him more profit year in and year out in



Houser Davidson in his office.

Note.—The author is associate editor, *Country Gentleman*, Philadelphia, Pa.



row crops than in any other use, so that's what he grows on them.

He has 265 scattered acres that aren't cultivated. They don't and can't pay their way in cultivation. They're too sandy or too sloping. They wash away if plowed frequently. They have lost money every year Davidson has tried to crop them.

"I keep rigid books," he says, "and I found out that I had to make 30 bushels of corn an acre to pay expenses. My 265 acres weren't making that much, so along about 1941 I quit cultivating them. I didn't give it much thought at the time, but that acreage was so gullied that it was awfully hard on the men and mules."

Davidson's concern then was primarily for his row crop land, not for the land he had lying idle. "I concentrated on my good land. I knew I could make money there," he explains. "My boy, Bill, was a little fellow at the time and I was determined to run this place so that I'd have enough to give him a good education. I wanted him to go into one of the professions, never to have to go through the struggle farming that I was going through."

Retiring the 265 acres, then, was a piece of defensive farm economics. "But it was soil conservation too," Davidson will tell you. "Even if we didn't use the term at the time, that's what it was."

"Later in the thirties we got interested in soil conservation as such. It was high time we did. We voted in a soil conservation district, got SCS technicians assigned here. These SCS boys helped me work up a map defining the characteristics of my land and its capabilities. I swear by that map . . . farm by it. It didn't show any need to change the way I handled my cropland, except that a few 'Saturday afternoon patches' the tenants planted in cotton needed to be retired from cultivation."

"My idle land, though, was a different story. Pasture looked like the best bet for most of it, pine timber for some. I began planting Coastal bermudagrass, Pensacola Bahia grass, kudzu and slash pines and it has paid . . . paid me every year I've had it. It's stopped my erosion. I don't have a gully on the farm. It's made me good hay. It led me into getting some beef cattle and I've made good money on them. All in all, several times I've made more money per acre on that land I once abandoned than I got from my best row cropland," he says.

Davidson thinks that real conservation is a lot more than mere soil saving. "I don't figure I've got conservation on a piece of land until I get it growing things it can grow without suffering erosion, until I get its organic matter built up and until I get enough profit from it to take care of me," he states. "That's the kind of conservation we have to have if our land is going to feed this growing nation."

He feels strongly about the soil improvement aspects of his soil conservation work, as you find from his frequent talk about humus . . . and as you see from the excellent tilth of his soil. When you seen an acre of Davidson land, you can bet it's a well-legumed acre.

To give you an idea, here's the cropping history on a field in good oats this year. "Made 90.3 bushels of oats an acre this time," says Davidson. "Had corn there last year. And the year before. Before that, oats the 8 previous years with iron peas planted in the stubble with a tiller plow and turned under green in September."

"I never burn any stubble," Davidson told us. "I'll bet this summer I've seen 10,000 acres of stubble going up in smoke. That hurts me. I couldn't afford to burn mine, wouldn't burn it if I could. I can't understand why men will butcher their land. They're just trying to go broke." Davidson is positive about that: he's a positive sort of man.

He's ruefully positive that he isn't going to harvest any more summer legume for hay. That's because of an event a couple of years back. "I planted soybeans where I was going to follow with oats in the fall," he relates. "I cut hay from half that field for soybeans. I shouldn't have. When I combined the oats the next June I made 28 bushels an acre less from the area where I'd taken the hay. I could have bought hay for less than that."

Davidson applies high rates of fertilizer. "To utilize that efficiently, I have to keep high organic content from my legume and crop residues in my soil; when I stole my own organic matter by taking that soybean hay I was robbing myself," he confesses.

He thinks organic matter pays off in other ways, too. In increasing the soil's water-holding capacity, for example: "Last summer in the drought my corn made more than most folks' because my soil had more water stored in it."





**Plenty of soil-protecting mulch has been laid down by these 14-year-old pines which Davidson planted as part of his sound land use program. The trees are on Class III land, Orangeburg fine sandy loam.**

Organic matter built up in land growing peaches—one of the major Davidson crops along with corn, oats and wheat—helps hold water. A spacing system Davidson devised lets his trees benefit from that water. He plants 75 trees to the acre, instead of the 100 common in his area. "It pays to conserve water just like anything else," Davidson claims. His yields appear to bear out the wisdom of his methods; his 2½-bushel-per-tree average over the past 15 years makes other growers' mouths water.

Davidson's peach orchards are planted in straight rows . . . "It's not peach land if it needs contouring, not in my country," he says. He gets around the danger of slight washing there by throwing a furrow across the slope along the tree trunks and

another in the middles. Weeds grow on these low temporary "terraces" until time for another cultivation, when a new furrow goes up.

Conservation's paid Davidson, beyond any doubt. His 15-year average yields are a fourth better than top yields from much similar land nearby. He's averaged 65 bushels of oats, 40 of corn, 28 of wheat. Pasture and beef yields have been excellent.

Davidson, an intense man, conceives a positive duty to pass along to other farmers the benefits he's had from soil conservation. He has something of a dedication to that duty, is virtually a soil disciple. He's talked all but a handful of the land-owners in Peach County into signing conservation plan agreements with the Ocmulgee Soil Conservation District; he's a non-paid supervisor.





Davidson is proud of this coastal bermudagrass pasture, planted in April 1951.



A fine stand of Bahia grass on some of Davidson's Class II land.

"Our districts are the only unit of government we farmers have ever had to run as we see fit. All the work we do through them is voluntary . . . and I think that's the only way we'll ever achieve a job as complex as soil conservation," Davidson says. He's a director, also non-paid, of the National Association of Soil Conservation Districts, a position requiring considerable travel and expense.

Davidson thinks what's good for his farm is good for the Nation. "I'm not satisfied with everything the way I have it now, of course," he admits. "I have my land use changes all made, but I feel that I've only just begun my soil improvement. The same thing is true of most conservation farmers here in our district.

"I'm going to keep building until I can average 100 bushels of corn in a normal year. Whatever I do, you can be sure that soil improvement will be uppermost. I'm not going to throw any of my land away by handling it so it can erode. I think too much of my land for that.

"I've had some successes; we've made some money every year since 1932. Conservation's

largely responsible. Operating with the needs of my soil primarily in mind might not make as much some one year as I could make otherwise; but it's going to be awfully hard to break me while my soil's this good. I think," he says, "that having my farm in this shape makes me a better citizen than I would be if I were sticking my neck out and getting it chopped off in short-sighted farming."

In spite of the satisfaction he's had with his farm, for the past several years Davidson has been a man facing bitter disappointment.

He tells the story best himself: "Along toward the war's end I really began to realize for the first time what soil conservation had done for this farm. It had become a good enough place for anyone to live on . . . and lead a worthwhile productive life.

"I began to want more than anything in the world for my son, Bill, to take over here when he got old enough. But I was too late. Already I had guided him away from here. Bill trained to be a geophysicist, got out of school and went into that work successfully, although the Army has him right now," Davidson recounts.





Davidson realized a fine crop this year from these 4-year-old peach trees. The orchard is on Class I land, Magnolia fine sandy loam.

About here a gleam comes into Davidson's eye and the tone of his story changes. "I don't deserve it, but Bill's coming home to the farm to live! He made a trip down here and told me he'll be coming as soon as he gets out of the Army. I didn't ask him to come. I wanted him, but I thought I'd better keep my mouth shut. The decision was his. Bill said he likes geophysics fine but that he'd rather work this farm than do anything else on earth. He says he wants to carry on the soil improvement work, so I don't have any worries about how he'll get along."

You can feel the humble thankfulness as Davidson adds, "Mamie and I sure are looking forward to the day when Bill and his wife get here. I've got lots of years left in me, but I can start shifting some of the load to Bill. His coming is the one thing I've been wanting that I didn't think I could get. You know what? The good Lord is a heap more generous with a lot of us than he has any call to be."

**GRASS-BASED ROTATIONS.**—The use of grass-based rotations is a relatively new practice in the Southeast. But judging from results some farmers are getting with this kind of rotation, the practice is due for a rapid increase in popularity.

Heyward Brown and his son Howard planted 8.3 acres of Class II-w land to tall fescue and ladino clover in the fall of 1949 on their farm in Lee County, S. C., in the Lynches River Soil Conservation District. They turned the land and planted it to hybrid corn in the spring of 1952, when a similar acreage of hybrid corn was planted on land that had been in oats.

During the severe drought that followed in the summer of 1952, the corn in the grass-based rotation showed no signs of wilting, but the other corn "burned up," they reported. The pay-off came at harvest time when they harvested 72.3 more bushels per acre from the grass-corn rotation than from the oats-corn land.

The effect of the grass-based rotation held over to the following year, when both plots were planted to oats. They harvested 3,686 pounds of oats this year from land that had been in the grass-corn rotation, as compared with 3,032 pounds from the oats-corn land.



## DISTRICT PROFILE

IVAN L. BARKLEY  
of  
SOUTH DAKOTA

**I**VAN L. BARKLEY was a conservation pioneer in southwestern South Dakota.

Barkley came to South Dakota 44 years ago. He and his wife homesteaded under the original Homestead Act and proved up two sections. He calls himself "an old prairie dog."

Traveling from Iowa, the Barkley's ran out of money at Ardmore, and, not being able to go further or even back to Iowa, they just stayed. They have gone through the good and the bad years. Through his good management Barkley has won a high prestige and become an outstanding farm leader. For years he has been experimenting



Ivan L. Barkley.

with new ideas and fellow settlers have grown accustomed to looking to Ivan for advice and help. If he says a variety is good, or the way to handle hay is thus and thus, or the time to market steers is now, others in the area follow along.

Ivan Barkley had to be a conservationist to get where he is today. On his place, the evidence of conservation is all around you on the 6,000 acres owned and several thousand acres leased.

Ardmore, South Dakota, is in the extreme southwestern corner of the State, where 15 inches of rainfall per year is average. Yet, when you drive off the prairie to the headquarters of the Barkley unit, you find yourself surrounded by trees. Ivan says he planted his first trees in 1920, and 75 percent of them are still alive. In those days he was told that it would be necessary to place rocks around the base of each tree planted on the upland and that during dry seasons the trees would certainly have to be watered. Barkley has proved that trees will grow, and the strong tree program that the Fall River County District is now carrying on can be attributed to his constant encouragement of getting trees established on the plains.

The windbreak trees are planted on contour and terraced. In addition to his regular windbreak trees, he has several varieties of fruits, including some good pears. Barkley has staked out contours and terraces for trees planted by other operators of farms. He might well be called "Caragana" Barkley because of his constant insistence on including caragana shrubs in all plantings. He says they dry up, the hoppers and blister beetles eat them up, the snow breaks them down, but they continue to grow and flourish.

Barkley's unit is in livestock, with some cropland. The latter is contoured to save precious moisture. Grazing management is in effect. There are 22 stockwater dams to distribute grazing, and 10 irrigation dams to provide water for pump and flood irrigation. At the present time Barkley has nearly 200 acres under irrigation for feed production. He has led the way toward alfalfa and wheat-grass mixtures, and he is a strong advocate of sweetclover.

There are four boys and two girls in the family. Two of the boys now have ranches of their own. Ivan has been on the board of supervisors since the organization of his district 12 years ago, and served as chairman for several years. His regular attend-

(Continued on page 119)



# Belina's Group

By FRANK D. MARTIN

**T**HE FIRST group of neighbors to get together in the Steele County (Minn.) Soil Conservation District for the purpose of planning soil conservation and applying it on their farms is now called "Belina's planning group."

There were 10 farmers in the original group, and their first meeting was in the fall of 1947.

Three planning meetings were held that first year and a follow-up meeting each succeeding year. The attendance has been 100 percent or more. News of their progress spread. Three more farmers have now joined. One man sold his farm but the new owner entered the group and applied to the district for a farm plan.

Meetings are always organized and called by their leader, Charles Belina. Charles not only is the leader of this group but also chairman of the district supervisors and president of the local chapter of the Izaak Walton League. He is a true conservationist.

The meetings are held at the home of a member. This honor is passed around. The members' wives and children all attend. The women come with baskets filled, and a lunch is always served before a meeting is adjourned. The women and children usually have a social gathering, while the men and older boys carry on the business and discuss their plans for the coming year.

They always ask to see an educational movie or some slides. The women and children enjoy this phase of the program.



Wives and children of the planning group.



Sitting: A. B. Seykora, Adolph Kovar, Joe Pavak, L. A. Wanous, Orlo Sette, Joe Stransky, Gene Deml, and O. A. Risser, farm planner. Standing: William Wanous, Charles Belina, Edwin Tomsicek, and George Belina.

The land in this area is generally flat and in need of tile drainage. At first, on six farms there were no outlet facilities—a problem that had existed for many years. The group discussed their mutual drainage problem at their planning meetings, and asked the farm planner and engineer what could be done about it. It was pointed out to them that a mutual drainage group could be set up, each paying his share toward the cost of a drainage enterprise. This was done and 2 miles of open ditch was constructed which solved a problem that had been a headache for years.

Adolph Kovar, one of the older members of the group, discontinued farming about 3 years ago. He still owns the farm and lives on it, and takes part in all the group meetings. He rented the land to Charles and George Belina and insists that the soil conservation program be carried out exactly as planned. Orlo Sette sold his livestock but is still carrying on a good rotation.

These farmers carry on other group activities also. They are liberal users of commercial fertilizers. This came about partly as a result of good crop rotations and good land use. They were determined to cut the cost of fertilizer, so they arranged to buy it in carload lots. This is distributed among the group. Everytime you visit the neighborhood, you see two or three of the group working together. Three members of the group have a hay chopper and put their hay up together. If they are not haying or harvesting or doing some tiling, the group will be building a machine shed or corner crib on one of the neighbor's farms.

Note.—The author is area conservationist, Soil Conservation Service, Owatonna, Minn.



# The Small Watershed Gets Attention

By ERWIN C. FORD

The 83d Congress, in making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1954, approved an item of \$5,000,000 under the title "Watershed Protection." The appropriation act describes the purpose of the allotment of \$5,000,000 for watershed protection in these words, "For expenses necessary to . . . carry out preventive measures, including, but not limited to, engineering operations, methods of cultivation, the growing of vegetation, and changes in use of land, in accordance with the provisions of Public Law 46, (Public Law 46 is the basic legislation which established the Soil Conservation Service) . . . ."

On the floor of Congress, in connection with this appropriation, Congressman H. Carl Andersen said, "This item would provide funds for a program of cooperation with local organizations on some 50 small watersheds in 27 states for the purpose of demonstrating the practicability of complete watershed protection as a means of conserving soil and water resources and alleviating damages from floods, siltation of reservoirs, impairment of stream channels, and related problems. These would be pilot plant watershed projects which could be completed in an average period of 5 years, at a total cost of about \$29 million to the Federal Government and approximately an equal cost to the landowners, local organizations, and states. This would be a type of cost-sharing venture—a local-state-Federal partnership in the protection and improvement of our vital natural resources of soil and water."

NOTWITHSTANDING a growing recognition of the close relationship of land and water, there has been a wide gap in correlating the planning for their development, conservation and use.

Two major planning techniques are being widely used today. One is the technique of planning and treating individual farm and ranch units without

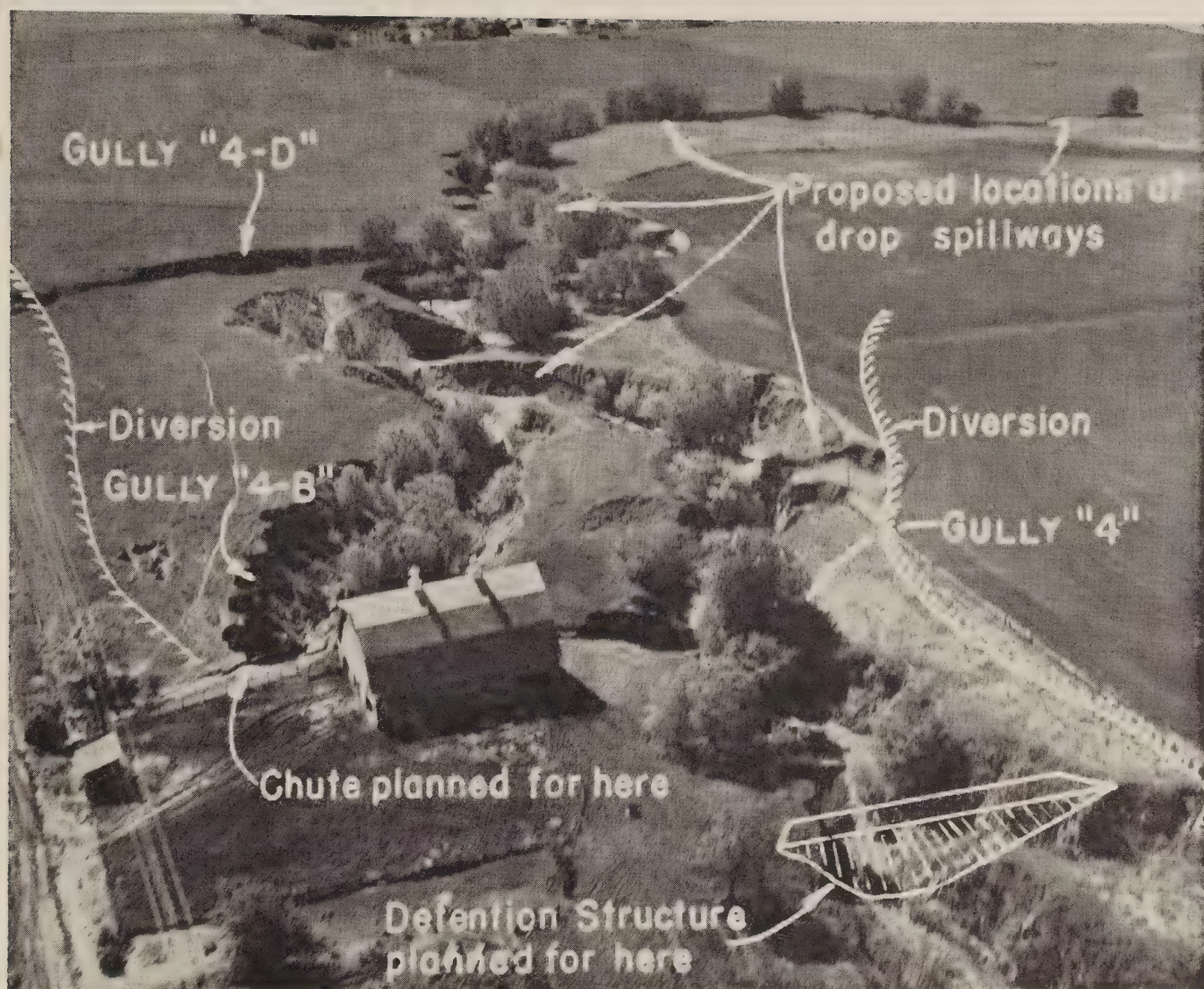
regard to factors outside ownership boundaries. The other is the multiple-purpose development of water resources by river basins without regard to incidental changes of runoff or sediment production resulting from land use and treatment. Between these two planning concepts there is an important missing link.

We now know a great deal about the relationship of land and water. There is ample evidence of the

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Note.—The author is an agricultural economist, Soil Conservation Service, Washington, D. C.





Planning scheme superimposed on air photo looking downstream, Gully 4, Walling watershed in Woodbury County, Iowa. This was in May 1951.

effect of proper use of watershed lands on runoff, sediment production, groundwater supply and other hydrologic factors. These considerations necessarily influence the planning, design, cost and maintenance of major downstream works for river regulation. Downstream river works for power, flood control, irrigation and water supply can add to the acreage and yield of farm lands as well as protect and increase industrial and urban developments.

The present conservation work on individual farms and ranches largely benefits those properties and often is installed with slight regard to what happens elsewhere. Thus, it is thought, we are passing up potential gains that might be realized were watershed protection programs to be accelerated and designed not only to maintain and

improve the productivity of individual farms but also to achieve the greatest possible improvement in water and sediment control downstream.

The missing link can be closed through a watershed protection program in which the work on one farm will be related to that on the next and where there is adequate attention to the needs not only of farmers but also to the community, to the urban people and to industries downstream.

The watershed protection demonstration projects will range in size from as little as 12 square miles to as much as several hundred square miles. They comprise a truly community watershed-protection program—a program that local people and their local organizations, such as soil conservation districts, watershed associations, and flood control districts, with assistance and help from State and







## EXPLANATION

Hatched areas indicate the 11 authorized flood prevention watersheds.

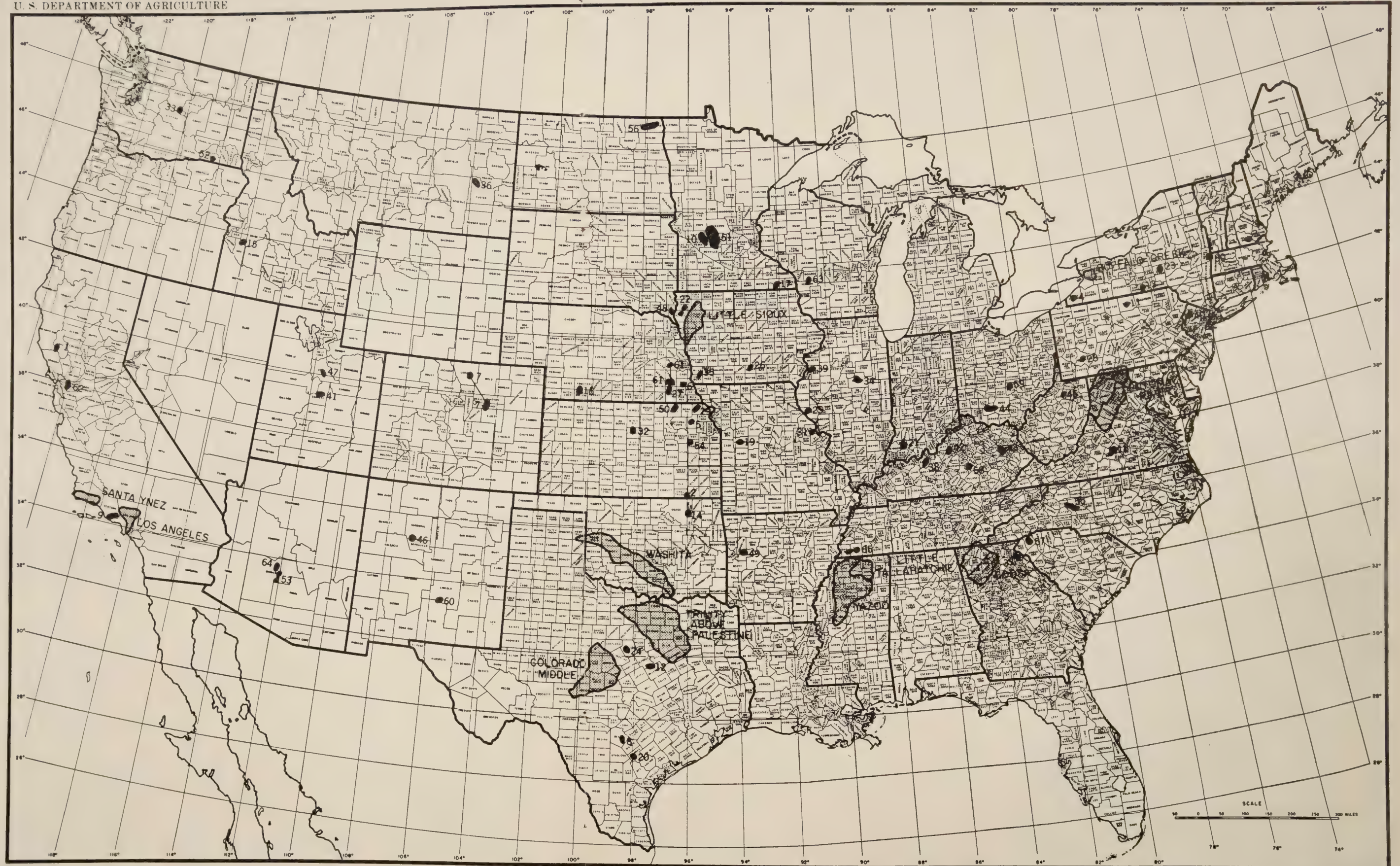
Black areas (numbered) indicate the watersheds under consideration in fiscal year 1954 under the water protection program. They are as follows—

1. Adobe Creek, Calif.
2. Aiken Watershed, Kans.
3. Baboosic River, N. H.
4. Ball Creek, N. Y.
5. Bill's Creek, Kans.
6. Brownell Creek, Nebr.
7. Buckhorn & South Platte Tribs., Colo.
8. Calaveras Creek, Tex.
9. Calleguas Creek, Calif.
10. Chippewa River Tribs. & Hawk Creek, Minn.
11. Cory Creek, Pa.
12. Cow Bayou, Tex.
13. Dean Creek, N. Y.
14. Double Creek, Okla.
15. Dry Creek, Idaho
16. Dry Creek, Nebr.
17. East Willow Creek, Minn.
18. East Fork of Falling River, Va.
19. East Branch of S. Fork of Blackwater, Mo.
20. Escondido Creek, Tex.
21. Flat Creek, Ind.
22. Floyd River, Tribs. Upper Plymouth Creek and Orange City Watershed, Iowa
23. Great Brook, N. Y.
24. Green Creek, Tex.
25. Hadley Creek, Ill.
26. Honey Creek, Iowa
27. Indian Creek, Nebr.
28. Jack's Run, Pa.
29. Little Delaware — Mission Creek, Kans.
30. Little Hoosick above Berlin, N. Y. and Mass.
31. Lost Creek, Mo.
32. Lost Creek, Kans.
33. Mission Creek, Wash.
34. Money Creek, Ill.
35. Mule Creek, Iowa
36. Muster Creek, Mont.
37. North Fork of the Broad River, Ga.
38. North Fork of the Rough River, Ky.
39. Old Tom Creek, Ill.
40. Pequest above USGS Gaging Station, N. J.
41. Pleasant Creek, Utah
42. Plum Creek, Ky.
43. Red River, Upper, Ky.
44. Rocky Fork—Clear Creek, Ohio
45. Salem Fork of Ten Mile Creek, W. Va.
46. Sandia Mt. Trib.—Bernadillo Watershed, N. Mex.
47. Santaquin, Utah
48. Scott Watershed, S. Dak.
49. Six Mile Creek, Ark.
50. Snipe Creek, Kans.
51. South & North Fork of the Crow, Minn.
52. Spring Valley Creek, Wash.
53. Squaw Peak—South Mt., Ariz.
54. Switzler Creek, Kans.
55. Third Creek, N. C.
56. Tongue River, N. Dak.
57. Twelve Mile Creek, S. C.
58. Upper Green, Ky.
59. Upper Hocking River, including Hunter's Run, Ohio
60. Upper Hondo, Tribs. of., N. Mex.
61. Upper Salt — Swedeburg Tribs. of Salt Creek, Nebr.
62. Walnut Creek, Calif.
63. West Fork of Kickapoo, Wis.
64. White Tanks, Ariz.
65. Wolf River Tribs.—Mary's & Sand Creeks, Tenn.

# FLOOD PREVENTION AND WATERSHED PROTECTION WORKS OF IMPROVEMENT

U. S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE



Prepared by: Soil Conservation Service 9-18-53



Federal agencies, can complete in a relatively short time. Small watersheds are natural planning units which are, we believe, the cornerstone to total river basin development.

In the very beginning of the nationwide program of soil and water conservation, in 1933, the Soil Conservation Service stressed the watershed approach. Its earliest work on demonstration projects was organized along watershed lines. The need for local organization and initiative during the past 20 years led to primary emphasis being placed on the individual-farm approach—the first basis of an action program. As the land treatment job has progressively advanced a renewed interest in the watershed concept has spread widely throughout the Nation.

In the past 5 years scores of watershed associations and other organized groups have been formed to work in cooperation with soil conservation districts for the purpose of achieving soil and water conservation objectives which are not being met through existing national programs. There are some 300 organized associations and 500 informal groups that have bound themselves together for the purpose of solving their watershed problems. Many such associations, together with soil conservation districts and individuals from all walks of life, actively supported the recently launched



**Desilting basin with whistle-pipe dam; Cane Creek watershed, Union County, Miss.**



**Bank-sloping rip-rap and grading on E. Foss farm, Erie County, N. Y.**



**Contour farming and level terraces above Detention Reservoir No. 10A, Sandstone Creek, Washita Watershed, Okla. Sweet clover is being used as a cover and soil-building crop on light area in center of picture.**

watershed-protection program. Already, many of these groups are joining in sponsorship of watersheds designated for treatment. The scope and urgency of local interest presents leaders at various levels with a challenge of the first order. Watershed protection now takes on the appearance of a grass-roots movement.

The conservation of the Nation's soil and water resources is a responsibility that rests primarily with farmers and ranchers. The Federal, State, and local governments have a large stake in it and can assist in many ways. Industries, urban areas, service organizations, sportsmen's clubs, and others, are vitally interested and concerned. Yet the work must start at ground level with the custodian of soil and water himself—the one who plows the land, plants and cultivates the crops, and manages the pasture or range and woods.

Sixty-five demonstration watershed projects are being considered which provide a cross-section of the many different types of physical, vegetative, climatic and economic factors present in various sections of the country. Experience argues against trying to develop a detailed plan for a much larger area than that in which a community of interest actuates the people living there. This factor tended



to place a definite limitation upon the size of watersheds selected. Consideration was given to the amount of conservation that had already been completed in the watershed, as well as the interest shown by the local people. Many of the watersheds were chosen because they lay in areas where preliminary surveys showed the need for, and practicability of, watershed protection measures and where it was likely that benefits from the program would exceed its cost.

Then too, Congress desired that these watersheds be geographically scattered over the country as an invitation to as many people as possible to participate. Congress wanted the watersheds watched by many people for clues as to possible courses of action on watershed protection in the future.

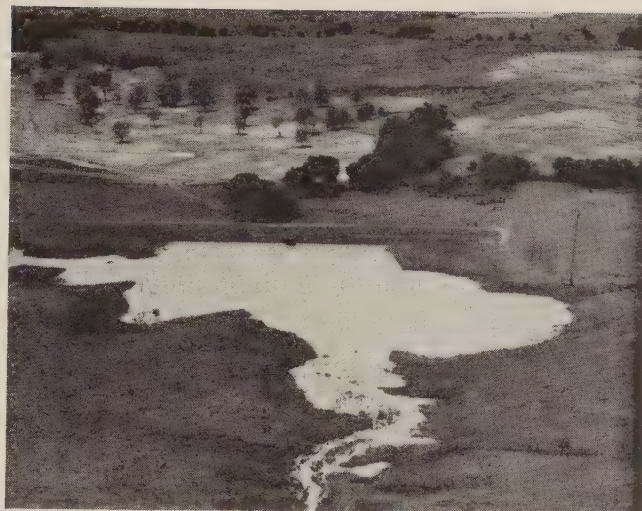
Sound plans are a prelude to constructive action and the first step in our watershed-protection program will be the preparation of a watershed plan. The local people must have the help of qualified



**Stabilizing and sediment-control structure, Nepper watershed, Iowa.**

technical help in preparing a plan in each small watershed. All local interests that are concerned will have their opportunity to participate in preparing the watershed plans. These plans will reveal the kinds, quantities and costs of all needed soil and water measures. They will show the specific location of major water-management measures such as floodwater retarding structures and channel improvements.

After preparation and approval of a plan by the Federal, State and local groups designs and specifications for the necessary structural phases of the program are completed. This is followed by appli-



**Bottomland protected by reservoir, Canadian-Walnut Soil Conservation District, Purcell, Okla.**

cation, installation, or construction of the recommended measures. Then ensues the operation and maintenance of the measures and, finally, the program will be carefully observed as to its effectiveness in accomplishing the objectives of watershed protection.

As indicated already, a successful watershed protection program requires that the people residing in the watershed must assume the principal responsibility. This necessitates the sponsorship of a soil conservation district together with other local, responsible organizations that are representative of the interests involved and which can help in formulating and achieving the best possible program for watershed protection.

It is also mandatory that local interests share a part of the cost. They will be expected to provide all easements and rights-of-way for structural measures, to carry out all of the land treatment practices, and to provide other help comprising altogether about 50 percent of the total cost of the project.

This program is a joint venture. It is intended to enable farmers to work with their neighbors and with residents of cities and towns, and with States and the Federal Government.

Watershed protection work will consist of the application of needed soil and water conservation practices on farm and ranch lands, of adequate protection and management of woodland, and of the installation of such measures as are needed and practicable for reduction of floodwater and sediment damages. There will be floodwater retarding structures, channel improvement, major





**Water conservation and flood control dam, Wyoming County, N. Y.**

gully control, streambank stabilization, and related measures. Because land and the behavior of water falling on land differs from farm to farm and from watershed to watershed, each watershed and each type of land in every watershed must be planned and dealt with individually. Due to the complexity and magnitude of these differences, no readymade plan or fixed set of practices can be invoked. Out of long years of painstaking research and practical experience, have emerged, however, certain basic treatment measures which can be considered in planning the protection program for each watershed. Some of these have been described by Carl B. Brown in his article, "Flood Prevention Through Watershed Planning," which was published in the March 1953 issue of *Agricultural Engineering*. I quote:

"Measures contributing to watershed protection can be classified in two broad categories. They can be classified in terms of purpose and also in terms of methods and accomplishment. In terms of purpose, there are, first, the land use and treatment measures, which are effective in increasing the infiltration of precipitation and the water-holding capacity of the soil and of preventing soil erosion on watershed lands. They include familiar measures such as contouring, terracing, strip-cropping, grassed waterways, rotations, pasture and woodland improvement, etc. This category also includes watershed-stabilization measures, such as control of gullies by structures or vegetation.

"This group of measures has one distinguishing characteristic, namely, that in most cases the predominant benefits from their use occur on-site,

that is, on the fields and farms where they are installed. That is not to say that they may not have a highly significant effect on reduction of flood damages. Often they do, but this is not their major benefit.

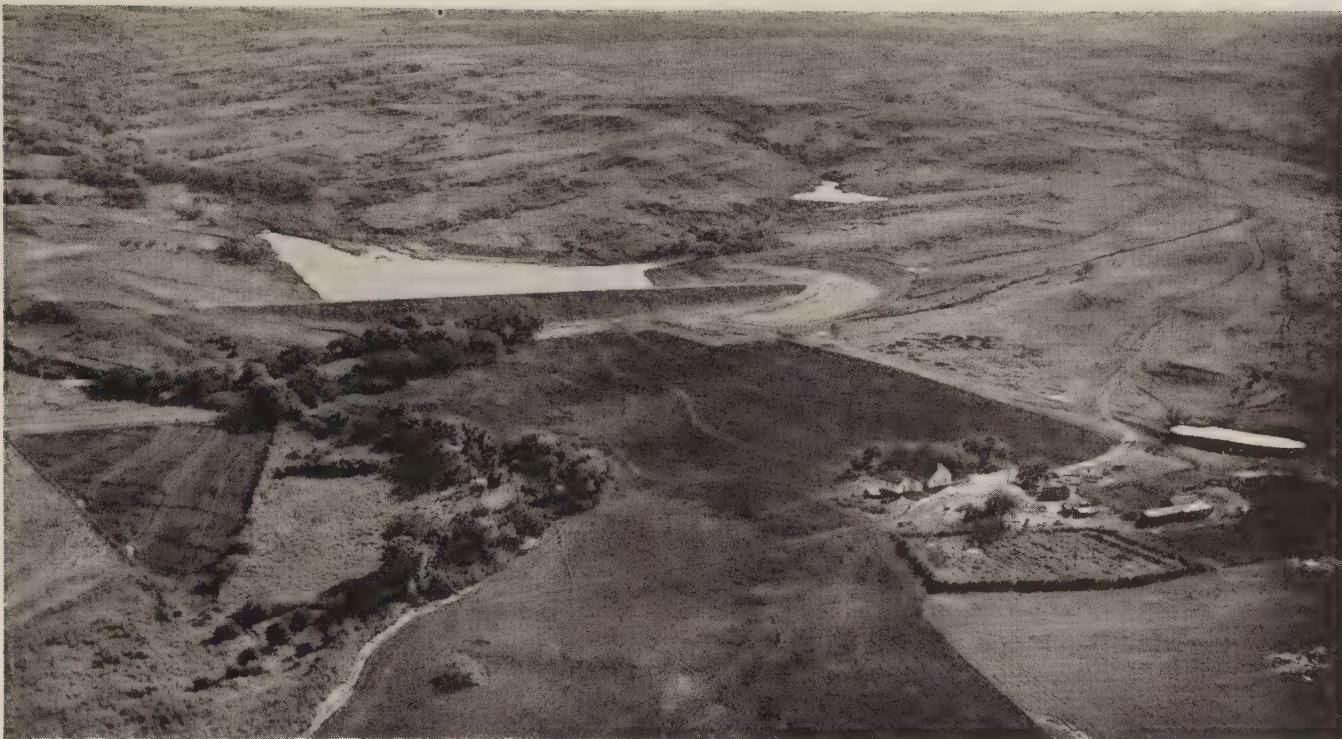
"A second category of measures are those planned primarily for the management of waterflow after it has left the fields and farm waterways and reached the small branches and creeks. These measures include floodwater retarding structures, stream-channel improvements to increase carrying capacity and stabilize beds and banks, minor floodways, sediment-detention basins and similar measures. The distinguishing characteristic of this group of measures is that their primary benefits are off-site or downstream, not at the places where they are installed. In this sense, the primary benefits are public, because they accrue to other farmers, towns, roads, etc., downstream from where the measures are installed.

"We can also catalogue measures that aid in flood prevention according to how they can be established or installed. A large part but not all of the land use and treatment measures are of such a nature that farmers and ranches can and will install them on their own land if given an understanding of their value, technical aid in their planning and installation, and some degree of financial assistance.

"Certain of these measures, however, which are needed for stabilization of watershed lands are either too complex for landowners to install, or else the benefits will be so long deferred that it is unreasonable to expect very many farmers to do these jobs. For example, reinforced concrete structures needed to stabilize large gullies, such as occur in western Iowa, require all the elements of planning, design, and supervision of construction that go into a major flood-control dam. The benefits from this type of gully control are primarily to watershed lands that would be destroyed by the headward growth and enlargement of the gullies. And these lands may be on other farms above the present gully head. If economically justified in the public interest, it becomes more efficient and economical for the installations to be made by agencies of government under binding maintenance agreements.

"The measures that are primarily for flood prevention, such as retarding structures and channel improvement, can rarely be installed by individual landowners. They require group action, highly





Part of the 4,700 acres of floodplain on Sandstone Creek, Upper Washita Soil Conservation District, Okla. Permanent pool has 17.8 surface acres, 141 acre-feet; flood pool, 29 surface acres, 253 acre-feet. The total is 394 acre-feet or 5.98 inches of runoff from the 790-acre drainage area.



Air view, Mortenson, Iowa, watershed, shows detention reservoir on main gully. In upper right corner is shown a drop spillway and chute with diversion. On far side of pond is a drop inlet with collecting diversions; on this side, partially seen, is a chute with collecting diversion. Main gully and several laterals have been completely stabilized.





**These terraces on Class VI or Class VII land held up despite rains that resulted in worst floods in Kansas history. They are in the Franklin County (Kans.) Soil Conservation District.**

skilled technical planning, and corporate or governmental financing.”

Among the more important highlights of the program are these:

1. Congress has indicated its intent that this program shall be carried out to (1) provide experience in developing sound procedures for local-state-Federal cooperation in achieving the watershed objectives of local people; and (2) demonstrate the actual physical results of a planned watershed program by determining increased productivity, decreased erosion, decreased floodwater and sediment damages, and other benefits resulting from watershed improvements.
2. This program is a most important step in watershed protection because it is intended to show what can be done.
3. The program will indicate the degree of readiness and willingness of local communities to bear their share of responsibility in the conservation of our natural resources.
4. Small watersheds will provide a means of working out practicable working relationships and procedures by which organized local groups, in cooperation with State and Federal agencies, can carry out planned programs for watershed protection.
5. The program of demonstration projects is designed to point the way to greater results for each dollar expended in our overall conservation effort.
6. The program may disclose effective ways to

close the gap between conservation on the land and improvements on the main streams.

7. The demonstrations should bring about a recognition of role of the treatment and management of agricultural and other lands and “little waters” in the upper watersheds in large river basin programs.
8. It is quite possible that the demonstrations will provide the Congress with information that will be helpful in preparing future legislation in this field.

**PONDS IN THE VIRGIN ISLANDS.** — Water conservation long has been of vital concern in the Virgin Islands. But heavy earth-moving equipment is very limited there.

Most such equipment is owned by the Virgin Islands Corporation, an agency of the Federal Department of the Interior. During the past two years VICORP, through a cooperative arrangement with the two soil conservation districts in the islands, has been making this equipment available to district cooperators in a well-planned water-conservation program.

Because the headquarters of VICORP are on St. Croix, most of the work has been done there. But during the past year, a bulldozer was assigned to St. Thomas and, after the necessary preliminary site surveys were made, a pond of 9 acre-feet capacity was laid off on the farm of S. E. Hartman, a cooperator with the St. Thomas and St. John Soil Conservation District.

Construction began in mid-July and the work was completed late in August—the first earthen-dam pond on the Island. The local SCS technician gave close supervision to construction.

The fact that there had been an almost continuous drought since October 1952 whetted interest in the pond among people living near the site and even to some extent among the townsfolk in Charlotte Amalie. Four days later a heavy 4-hour rainfall filled Hartman's pond to capacity.

The technician was literally swamped with telephone calls after this apparently providential occurrence. He arranged a series of tours from Charlotte Amalie to the Hartman farm, where he explained to a large group how the construction of farm ponds fits in with a soil conservation district program.

Governor Morris F. de Castro, a strong supporter of conservation, gave a full description of this notable event in a radio chat on the night of September 2. The *Daily News*, of Charlotte Amalie, was generous with publicity from the beginning of the pond's construction to its completion, and afterward.

This year there has been a pond-building program under way in St. Croix also, where four more ponds with 36 acre-feet of storage capacity were constructed in August. However, up until September hardly enough rain had fallen to wet the newly exposed surfaces of the storage basins of a large number of ponds in St. Croix built so far in 1953.



# Allegany Wipes the Slate Clean



Allegany County Soil Conservation District achieved its impressive record partly through its use of a quarter million dollar fleet of machines and implements.

By **BERNHARD A. ROTH**

**A**LLEGANY COUNTY, N. Y., became one of the Nation's few debt-free, equipment-owning soil conservation districts recently, when Director Lester D. Rees deposited a final \$1,400 check in the county's treasury at Belmont. The payment wiped the slate entirely clean of a \$23,400 advance received early in the district's 13-year career.

From it has grown a quarter-million dollars worth of equipment serving 1,750 farmers. It includes 40 pieces of heavy, earth-moving machinery—trucks, tractors, bulldozers, carryalls, graders, terracers and the like, plus a host of specialty devices, hand- and power-aids and accessories. Housed and maintained in the district sheds, the materiel fits the district to tackle any conservation job. And it's a comforting reserve for whatever public emergency may arise, be it fire, flood, storm or civil defense.

Effective use of facilities has earned Allegany an enviable record in the annals of the national district movement. Sample accomplishments, to date: over 400 farm ponds built; 13,000 acres reforested; 30,000 acres of woodland improved and protected; 252 miles of diversion ditching; 40 miles of streambank controlled; 60 miles of outlets and farm watercourses established.

The ultimate in skilled machinery management and precise planning was demonstrated by Allegany SCS technicians the summer they qualified for the exclusive "pond-a-day club," a construction pace seldom equaled. There are plenty of maintenance headaches in the district shops, but rust is seldom one of them.

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**FOREST PLANTING STOCK.**—A recent survey of Michigan indicates that there are now over 1,200 seedbeds in the State operated by individuals, the majority of which have been sponsored by local soil conservation districts.

Note.—The author is in the information division, Soil Conservation Service, Upper Darby, Pa.



# Meadows Improve in Taos Valley



These "blacks" are waiting to be turned into rotation pasture on Yucca B Angus Farm near Taos, N. M.

By PHIL LOVATO

**I**MPROVED irrigated pastures and the famous native "vega" meadows of the Taos Valley in northern New Mexico are making a strong bid to provide year-round feed and forage for Aberdeen-Angus cattle.

One of the largest outfits of the registered blacks in New Mexico has headquarters on the outskirts of Taos. This outfit, the Yucca B Angus Farm, is run by Sid Johnson and Sam Beimer of Taos. Will James and Daniel Gonzales of the James &

Gonzales Company, another Angus outfit, were the first to establish a registered herd in the valley. Vern Sackett of Taos and Kingsbury Pitcher of Arroyo Seco run smaller herds and are making plans to expand. The success of these ranchers may encourage others to obtain better use of the potentially productive sub-irrigated meadows in Taos.

These native meadows have always been considered an important part of the economy of the valley since the first Spanish settlers arrived. El Prado, a village a short distance north of Taos, is Spanish for meadow or pasture land. Down through the years these meadows have furnished grazing in the spring and fall and produced a crop of hay during the summer season while stock grazed in the mountain ranges. Summer grazing areas, however, are being used to full capacity and the search for increased pasture production continues. At present the native meadows in the valley are, at best, covered with bluegrass and white dutch clover. Frequently there is considerable redtop which is not readily grazed by livestock. Sacata ancho, a wide-leaf sedge, and a wire rush predominate when water remains on the meadows too long, and also tends to come into the better land with overgrazing.

Cooperators of the Eastern Taos Soil Conservation District are finding that seeding of new irrigated pastures and reseeding of the native "vegas" with better quality grasses and good pasture management will pay large dividends. A pasture mixture of smooth brome, orchardgrass, meadow fescue, timothy and alsike clover on 13 acres of the Yucca B Farm provides as much grazing for 80 brood cows as 27 acres of adjacent unimproved native meadows.

Sid Johnson, owner, estimates that three 13-acre pastures of improved grasses used on a systematic rotation grazing will carry 100 head throughout the summer grazing season. Encouraged with the

Note.—The author is work unit conservationist, Soil Conservation Service, Taos, N. Mex.



results being obtained, operators of the Yucca B Farm expect to continue improving their valley holdings to eventually carry 300 brood cows.

Areas which have too much water are being drained to permit the better grasses to grow. In parts of their lands in the Colonias Valley where the water supply is short, a large sump, 800 feet long, capable of storing enough of the sub-surface water to irrigate about 100 acres, is being excavated. This acreage will be leveled and seeded to alfalfa for winter use. If results prove favor-

able other sumps will be built to irrigate additional improved pastures for their blacks.

There are well over 5,000 acres of native meadowland in the immediate vicinity of Taos and their improvement through reseeding to better quality grasses and proper grazing management would increase beef production in the valley, say range men of the Soil Conservation Service. Results being obtained on the Yucca B Farm and on an increasing number of other farms, appear to prove it.

# Fewer Thirsty Crops on the Plains

By A. E. McCLYMONDS

**L**AND under irrigation in the six Northern Great Plains states—Kansas, Nebraska, the Dakotas, Montana and Wyoming—was increased 144,340 acres by soil conservation district co-operators during 1953.

Note.—Until his recent retirement, the author was regional director, Soil Conservation Service, Lincoln, Nebr.

Of this, 81,660 acres are in small projects in which several farmers worked together, and 62,680 acres were developed in the application of conservation plans for individual farms.

This brings to 804,671 acres the total new irrigation developed by soil conservation district co-operators in the region up to the first of this year. Small group jobs accounted for 337,447 acres, and



These potatoes on the Guy D. George farm south of Whitehall, Mont., are on contour and irrigated by overhead sprinkler. Last year production was 618 bushels per acre.





Starting a siphon to irrigate corn on the Lloyd Fishback farm, Harlan County, Nebr.

the application of conservation plans on individual farms accounted for 467,224 acres.

Technicians of the Soil Conservation Service supplied the technical services for both group accomplishments and the development of farm conservation plans. Cooperation from State agencies, such as the Montana Water Board, was received by some of the groups in developing the water supply.

About 16 percent of the new land brought under irrigation resulted from improvements in existing irrigation systems. In some instances it was possible to get water on land that could not be irrigated before the system was revised. In others, the smaller amount of irrigation water needed per acre under the improved system made irrigation water available for more land.

For all other new irrigated land developed by soil conservation district cooperators in the region, the water supply as well as the land had to be developed.

Montana soil conservation district cooperators lead the parade with a total of 368,373 acres of new land brought under irrigation, or nearly half

of the region's total. Over three-fourths was by group jobs.

Nebraska's total of 249,956 acres is the second high, all but 1,100 acres of this land being brought under irrigation through the application of individual farm conservation plans.

Wyoming, with a total of 92,699 acres, ranked third. About half of this state's new irrigated land was developed in group jobs.

Kansas is fourth with a total of 68,951 acres of new irrigated land, all of it developed through individual farm conservation plans. South Dakota is fifth with 18,358 acres, of which about 42 percent was in group jobs. North Dakota has no group jobs in its 6,334-acre total.

Pumping from wells supplied most of the water for the new irrigation developed by district co-operators in Nebraska and Kansas. Streams and storage ponds are the principal sources in the other four states; some is pumped, but most is delivered by gravity flow.

Small irrigation dams built by soil conservation district cooperators in the region total 3,548.

Besides helping district cooperators bring new



land under irrigation, SCS employees helped improve the existing irrigation systems on 75,000 acres in the Northern Great Plains, bringing the total so improved to just under 600,000 acres. This was done in order to conserve soil and water.

Much land leveling, and construction of irrigation structures and supply and field ditches, has been necessary on both the new irrigated land and the land where existing irrigation systems have been improved. Land leveling was done on 50,830 acres in 1952, which brought the aggregate up to 356,000 acres.

**STRIPS BOOST PRODUCTION.**—When his 30 acres of potatoes produced an average 127 barrels per acre in 1948, Lloyd McKinnon, a farmer of Bridgewater, Maine, wasn't so pleased as you might expect. That was because on one 20-acre hilly field, where the slopes averaged 5 to 12 percent, the yield was only 80 barrels per acre. This land was badly washed and McKinnon had a hunch that he wasn't handling it the right way. So, he asked the Southern Aroostook Soil Conservation District for assistance and became a conservation farmer.

For a cash outlay of \$75, McKinnon built 1,700 feet of diversion ditches and 3,100 feet of outlets in the field, planted in contour strips and awaited results.



Part of McKinnon's hill field.

Next year, the average yield on 23 acres jumped to 165 barrels of potatoes per acre. In 1950, on 19.5 acres the harvest was 195.3 barrels per acre—211 barrels on the problem area and 187 in other fields that once were better. In 1951, when the hill field was rented, it yielded about 200 barrels per acre. Last year, on 28 acres of potatoes, McKinnon harvested an average of 125 barrels per acre; 186 on the hill field, 105 on the rest.

Increased production is not limited to potatoes. Oat yields in the strips between potatoes have increased from 35 to 50 bushels per acre. Grass production between potato strips, where there previously had been virtually nothing, is 2½ to 3 tons per acre, yields being at least 25 percent better than in fields planted solidly with these crops.

McKinnon is getting ready to put all his cropland into strips. It means building 1,000 more feet of diversions and 1,900 feet of outlets. Some strips will be on contour, others of even width. "The even width strips," he says, "are easier to rotate and take care of, but do not yield so much as the contour strips."

McKinnon finds that there is less blight in potatoes planted on the contour. He explains it thus: "If a depression is left in rows in even width strips, a heavy shower will cause a slight deposit of silt that clogs the pores of the soil, especially if it is somewhat imperfectly drained. When water stands a few hours in these pockets, and temperatures are favorable, blight develops. We don't have this problem in contour strips. Once in a while there may be a break through a strip, but that doesn't bother me because I well remember the heavy washing I had in my fields when I planted up and down the slopes."

—HUGH F. EAMES.

## IVAN L. BARKLEY of S. DAK.

(Continued from page 104)

ance at board meetings is almost a religion. He has actually been known to start out for a board meeting a day ahead of time, and because of bad roads, travel several hundred miles detouring through Nebraska and Wyoming and back into South Dakota to be on time the following morning. He has attended State and National Association meetings. For 9 years he has served as county PMA chairman. At one time or another he has also served on about all of the other boards in the county. He is active in supporting a church in his community, and is as proud of organizing and conducting conservation tours through his community as his community is proud to have him.

His slogan regarding trees and conservation in general can be summed up in this way: "I know of nothing that costs so little in time and money, from which you can derive so much pleasure, as a few trees."

—JOHN T. LOUCKS.



*We must give people Truth, which is something more than an assemblage of facts.*

*We must develop in them a philosophy, if conservation is to be a true mass movement. . . .*

*We must give them leadership that will develop volunteer leaders at local levels.*


*We must set up an ethical standard within the body of society that will form a new measurement for social approval.*

*We must realize that conservation cannot disassociate itself from any of the other social forces moving man in his daily routine.*

*We must remember that we can do relatively little about managing wildlife unless we can do a great deal about managing man's manipulation of the earth on which all life exists.*

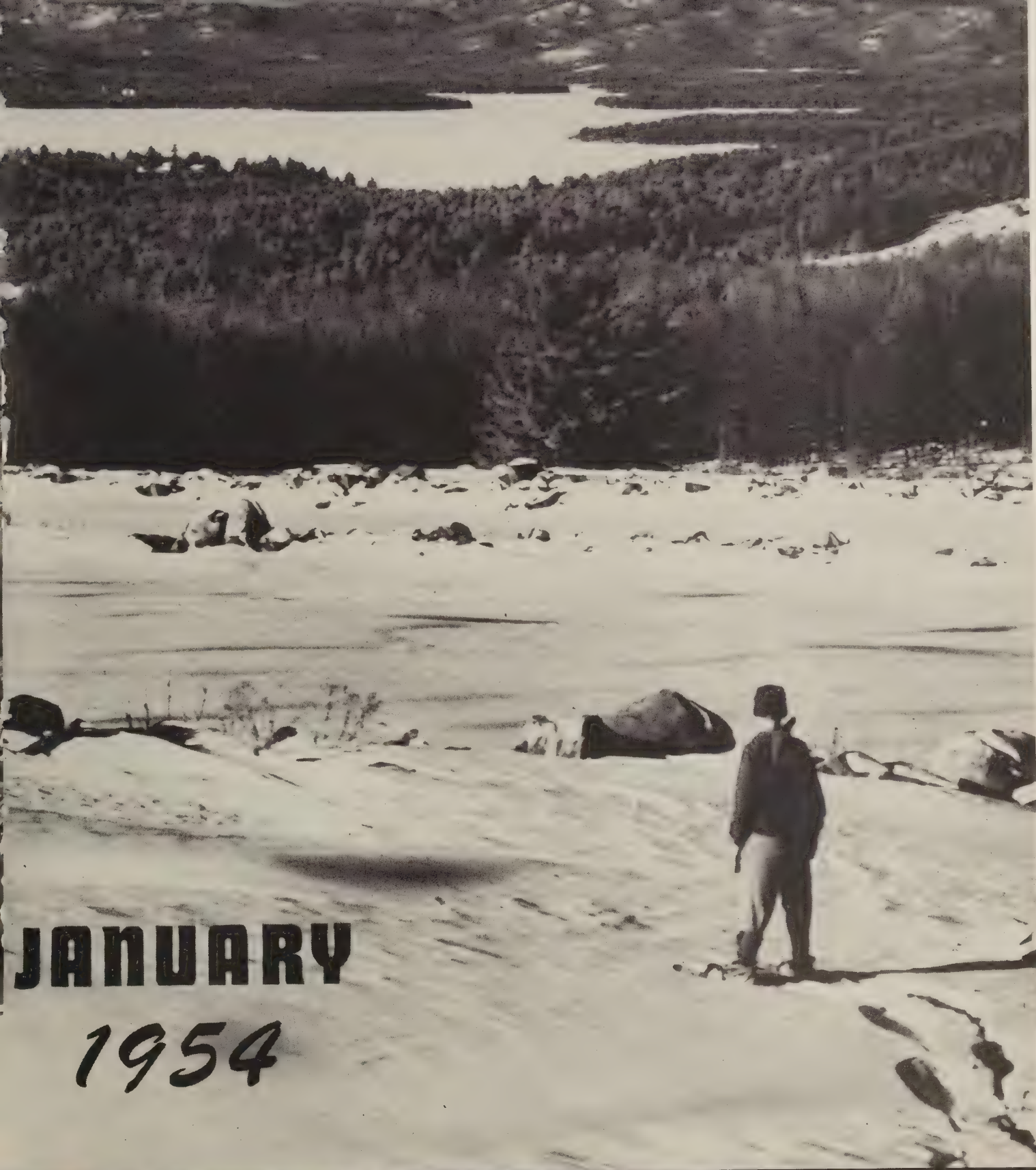
—DAN SAULTZ

*Missouri Conservation Commission*



***Both Land and  
People are secure  
in this Protected  
Watershed***





**JANUARY**

**1954**

# Soil Conservation

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE



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**EZRA TAFT BENSON**  
SECRETARY OF AGRICULTURE

**DONALD A. WILLIAMS**  
ADMINISTRATOR, SOIL CONSERVATION SERVICE

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## ★ THIS MONTH ★

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**WELLINGTON BRINK**  
Editor

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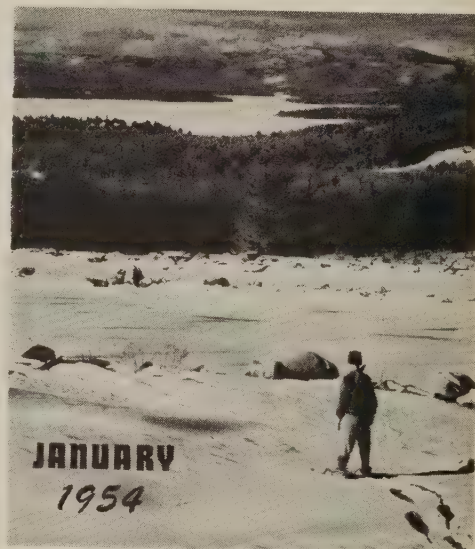
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**DATES.**—Are you interested in a date? Many persons are. As people and organizations grow older, debates about dates become keener. Since soil conservation has grown up—come of age, so to speak—conflicting claims relating to the first soil conservation erosion control demonstration project to be established spring up with surprising regularity.

SOIL CONSERVATION Magazine was an innocent victim of such a debate. The November 1953 issue reported the activity of the Georgia Historical Commission in placing a historical marker to commemorate the establishment of the first demonstration project in Sandy Creek, Ga. Another story in the same issue, by Lewis C. French of the *Milwaukee Journal*, reported the celebration of the establishment of the first demonstration project in Coon Valley, Wis.

Obviously, both these reports could not be correct. Documented evidence has now been supplied that Coon Valley, Wis., was, without a doubt, the site of the first dem-

(Continued on page 125)



**FRONT COVER.**—Winter on a north woods farm, Lake Winnepesaukee and White Mountains in the distance. Young Joseph Fletcher, Concord, snowshoes in rock-cleared pasture of Smiling Hill Farm, co-operator with Belknap County Soil Conservation District, N. H. Photographer: Gordon S. Smith.

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## FLASH . . . DON WILLIAMS COMES HOME!



Donald A. Williams.

Confirmation of the appointment of Donald A. Williams as administrator of the Soil Conservation Service and designation of Gladwin E. Young as deputy administrator was announced November 27 by Secretary of Agriculture Ezra Taft Benson.

Since November 2, effective date of USDA reorganization, Williams had served in an acting capacity. For some months previously, he had been in charge of the Agricultural Conservation Program, on loan from his post as assistant chief of the Service.

The newly-designated deputy administrator comes from the office of Assistant Secretary of Agriculture J. Earl Coke where he has been handling flood prevention and watershed work. For a number of years Young was in the Bureau of Agricultural Economics and until recently he was the USDA representative on the Missouri Basin Inter-Agency Committee.

The new developments will receive more extensive coverage in the next issue of SOIL CONSERVATION Magazine.





## It's More than "Crop Insurance!"

By T. H. QUACKENBUSH

**D**ROUGHTS long have plagued the so-called "humid area" of the Eastern United States. The years 1951, 1952 and 1953, produced severe and widespread droughts. Farmers clamored for sprinkler irrigation systems to save their crops. Many of them purchased systems that were not specifically designed to fit their farms—makeshift systems put together to meet an emergency. In many cases they saved crops and to large extent paid for themselves in one year. In other instances, systems were purchased only to find out that the farm pond didn't hold enough water for irrigation.

Large investments were made in irrigation systems that with reasonable maintenance should last at least 20 years. What about the 15 to 18 years in between the droughts?

"I have my irrigation system in the barn; when it gets dry, I will irrigate and save my crop," is the typical answer of many farmers.

"I have crop insurance now; when it dries up I can pour on the water," is another common remark.

Certainly, such a farmer has "crop insurance." But he also has a lot more. Through the proper use of his irrigation system he can *control the moisture in the soil*. Not only can the disastrous effects of severe droughts be eliminated, but crops can be produced each year under optimum moisture conditions. This means greater yields and better quality.

Several studies of rainfall records have revealed that periods of moisture deficiency occur in the humid areas much more frequently than is usually recognized. This means that nearly every year there may be one or more times when plants suffer to some degree from lack of moisture. A deficiency is not always revealed in the appearance of the plants, but it does often affect production and quality. This sort of thing can be prevented if irrigation systems are properly used.

The farmer who stores his system in the barn, waiting for his plants to wilt, hoping for the rain that doesn't come, certainly loses his chance to gain the extra production and better crop quality that follows irrigation in accordance with the needs and capacity of the soil.

NOTE.—The author is irrigation specialist, Soil Conservation Service, Washington, D. C.



The farmer who has invested in an irrigation system and desires maximum returns on his investment must become an *irrigation farmer*. Irrigation farming certainly involves a lot more than putting on some water when the crops begin to wilt from lack of moisture.

An irrigation farmer who wants maximum returns from his irrigation system should consider the following items—

(1) Types and varieties of crops grown: Are the crops that will pay best under irrigation now being raised? Do I have enough varieties so that not all crops require water at the same time? Now that I have adequate moisture, can I increase the plant population and thus increase yields?

(2) Soil fertility: Have I built up the fertility of my soil so it will produce maximum yields under irrigation? (Good fertile soils will pay better under irrigation than poor depleted soils.) Have I planned for additional fertility measures that will be required since yields will be greater? Are my rotations adequate to maintain fertility?

(3) Soil and water conservation: Have I completed all necessary conservation measures to hold my soil in place and utilize all of the rainfall that I can? (It is cheaper to hold an inch of rainfall on the land than to pump an inch through a sprinkler system.) Is my soil properly drained? Will my drainage system adequately handle the extra load that may be brought about by adding irrigation water just prior to a heavy rain? (Crops that get a late start in the spring and are partially drowned out by early moisture will not give maximum yields under irrigation.)

(4) Irrigation water management: Do I know how much water my soil will hold? Do I know when to irrigate? (Plants will show stress even prior to reaching the wilting point. If you wait that long to start irrigation *it is too late*.) Do I know how much water to put on? (Plants with different root depths may require different amounts of water.) Do I know how fast to apply the water?

(5) Labor requirements: If the irrigation farming is done right *it is work!* Should I plan to operate 24 hours a day or only 8 hours? (Remember, it takes a system three times as big to do the job in 8 hours as would be required for 24-hour operation.) Do my movement schedules fit into my other farming operations? Will I need to hire additional help?

(6) Retirement of poor land from cultivation: Now that I can increase the yields from my better land, how about retiring that poor land that should be in grass?

These are only a part of the questions that will confront the irrigation farmer in humid areas. Consult your local soil conservation district to get help in planning your irrigation system.

Remember, irrigation, in order to succeed must be an integral part of a conservation farm plan. It may necessitate several changes in present farming operations. Know what these changes are going to be before you purchase. Heed the trite but sensible warning of those who are concerned with the success of irrigation in humid areas: Investigate before you invest!

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## DATES

(Continued from page 122)

onstration project to be established by the Soil Erosion Service (later the Soil Conservation Service). The annual report of the Secretary of the Interior for the fiscal year ended June 30, 1934, states that the Coon Creek demonstration project in Coon Valley, Wis., was the first of these projects to be established and lists it as *Project No. 1*. Also, photostatic copies of payrolls and personnel appointment records show that Ray H. Davis was appointed as regional director for the Coon Valley project on October 10, 1933. Other records indicate actual work in Coon Valley was started in November 1933.

The date of the establishment of the Sandy Creek, Ga., project according to records available in Washington, D. C., was April 2, 1934, when Loy E. Rast was appointed regional director of the project with headquarters at Athens, Ga. Sandy Creek, Ga., was listed as Project No. 19, so the records seem to uphold Coon Valley's claim to being the first erosion control demonstration project established in the United States.

—A. M. HEDGE

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**EVERYONE CAN HELP.**—The Betsie and Platte Watersheds Improvement Project was organized about a year ago, under the sponsorship of the Benzie (Mich.) Soil Conservation District. Closely cooperating were the Grand Traverse Soil Conservation District and the Manistee Soil Conservation District. Many clubs, civic organizations and government agencies assisted in setting up the project.

A large portion of the two watersheds is forest, resort or recreational land; the "summer people"—part-time residents, hunters, fishermen, and vacationists—are enthusiastic about this work. For example, Frank M. Phillipps, who owns a summer cottage on the Betsie River, volunteered his services in art and advertising to get out a high-quality folder on a demonstration day held last summer. This will be useful for distribution for years to come.

—ARVID TESAKER



# "Greening Up" a Utah Ranch

*District honors four brothers for their pioneer achievements  
in conservation and improvement of range land.*

By EARL SPENDLOVE

**I**N THE spring of 1953, one of the driest in the history of the State, the Heaton Brothers of Alton, Utah, grazed 900 head of sheep for about 2 weeks on 200 acres of land. It was land that only a few years ago was producing practically nothing for feeding livestock.

The brothers—Vard, Gail, Lloyd and Ross—operate a sheep and cattle set-up on private, public, and forest lands in southern Utah and northern Arizona. They are convinced that if they had started their present range seeding and management program 10 years ago, they wouldn't have to worry about feed even in the depths of drought.

Under the Heaton system, the cattle winter on public and private lands in the "Arizona Strip"—that portion of Arizona which lies between the Colorado River and the Utah state line. Summers are spent in the Dixie National Forest in southern Utah. In the spring and fall, the stock are run on privately-owned land in the vicinity of Alton. This latter range, like most spring-fall ranges, has suffered because grazing usually begins just as the plants start to "green-up" and continues until the soil is so dry that the plants make little or no growth after the stock has been moved to the higher ranges.

As a result of this too early, too long, and too heavy use, the better plants had been killed out and replaced by undesirable species when the brothers took over the ranch about 15 years ago. Land that once produced considerable grass was covered with piñon, juniper and sagebrush. On it grew only a fraction of the feed it was capable of producing.

"If we could have sold the ranch and bought land somewhere else, I guess it would have paid," said Vard. "But no one wanted the ranch. We were stuck with it. So we decided to do what we could to improve it."



**Ross explains that stock prefer smooth brome to crested wheatgrass. In background is a windrow of piñon and juniper.**

The Heatons knew that the ranges had been overstocked. They acquired more land to reduce the stocking.

The bottom of practically every drainage had a deep gully, so they put in rock and brush and earthen dams to hold back some of the silt.

The spring-fall range was practically devoid of grass, so they purchased seed and scattered it from horseback as they worked with the stock. No attempt was made to cover the seed and very little of it ever came up. The few seedlings that did come had to compete with the already established browse and weeds for moisture, and, since the area was unprotected, had to be able to withstand grazing and trampling by livestock. Needless to say, this first attempt at range seeding was somewhat discouraging.

During the next few years, the Heaton brothers did no further seeding. But they did read a great

NOTE.—The author is with the Soil Conservation Service, Kanab, Utah.



deal on range matters. And they worked out a conservation plan with the Kane County Soil Conservation District. This plan called for clearing the land before it was seeded and for protecting it from grazing until the grass could become established.

In the fall of 1949 it was decided to try another grass seeding. The area selected was just south of the town of Alton. Here the elevation is 7,000 feet and the annual rainfall 17 inches. The heavy clay soil supported a thick stand of piñon and juniper with practically no vegetation under the trees. This was definitely not one of the better sites. It was fenced, however. A bulldozer pushed the piñon and juniper into windrows. Part of the land was plowed, and a mixture of smooth brome, crested and western wheatgrass broadcast and worked into the surface by harrow. On the rest of the land the seed was drilled. Seeding was done late in the fall, to take advantage of the melting snows and early warmth of spring.

In that summer of 1950 the land that had been seeded came up to a thick stand of annual weeds. The Heatons seriously considered plowing and re-planting. On closer examination, however, they saw a lot of grass starting to grow down there in

the weeds; there was a better stand on the land that had been plowed than on that which had not.

The success of the 1949 planting started the Heatons' grass-seeding program. Every year since then they have cleared and seeded from 50 to 100 additional acres. All seedings are with a drill, and the original mixture has undergone some variation. Western wheatgrass, a slow starter and not too palatable, is omitted; yellow blossomed sweetclover has been added. In the later plantings, tall, intermediate, and stiff-hair wheatgrass is included.

All plantings receive complete protection for at least one, and generally two, growing seasons—and conservative use after that.

In some instances the Heatons did not get a thoroughly satisfactory stand on land which had been farmed several years prior to planting grass. They attribute this to the fact that the crops had removed considerable fertility and soil moisture, which may make it necessary to rebuild by summer fallowing.

The stock seems to prefer the brome, intermediate and stiff-hair wheatgrasses to the tall and crested wheatgrasses. This precipitates a management problem, because the animals tend to overgraze the more palatable species before they start on the



Gail, center, explains seeding methods, mixtures, and costs to group of fellow ranchers.



others. To meet this problem the Heatons watch the favored grasses and stop grazing when they're about half gone.

Until the spring of 1953, the clover in the mixtures was not a problem. By the time the sheep were moved onto it, the clover was mature sufficiently not to cause bloating. The cold, dry spring of 1953, however, held the clover back; it was starting when hungry sheep from the dry ranges of Arizona arrived. As a result, there was some loss caused by bloating. The Heatons, nevertheless, like clover in their plantings because it produces a lot of feed, and because the grasses seem to do better when growing with clover. To meet the bloat problem, it is planned to reduce the amount of clover in future plantings and to delay grazing until the clover has reached the proper stage of maturity.

Not only are the Heatons getting more feed from land seeded to grass, they have also increased the production of native plants on ranges where seeding is impractical. On the steep, rough, mountain ranges, the browse is vigorous and healthy and

more native grass is showing up every year. On the Arizona ranges, the better grasses are definitely on the increase, and the difference between their range and the adjacent land shows up for miles along the fence line. This improvement of the native ranges has been brought about by selecting the plants that would produce the most and the best feed, and by managing these ranges to favor these plants.

*Because of the work they have done in range seeding and range management, the supervisors of the Kane County Soil Conservation District selected the Heaton Brothers as the district's outstanding conservation ranchers of 1953.* They represented the district at an area meeting of the Utah State Soil Conservation Districts Association, and were presented with an award for their work in conservation.

Although they have done more range seeding than anyone else in the county, they feel that they have only scratched the surface in conservation and improvement of range land.

## County Farm's Soil Plan Pays Off

By JERRY KRIEGER

A couple of years ago we went out to Berrien County's county farm at Berrien Center, Mich., to see what a newly-instituted soil and water conservation plan was starting to do for the farm. It was just a year and a half after the program had been started, and already then big changes had taken place.

This fall, we went back again to see if the soil plan was panning out as well as expected and if it was paying off.

Probably the best answer was provided when Farm Manager Gail Peapples laid out copies of the annual financial reports on the farm, as prepared by the Berrien County Welfare Board.

The report covering the first fiscal year ending September 30, 1949—the year Peapples started as manager—showed the farm had made a net profit of \$2,245.

The second year showed a net profit of \$3,163, and the third year the figure was up to \$5,218.

And in the year ending September 30, 1952 there was a net profit of \$9,102.79.

These figures all represent what was left after all expenses and wages were paid, and depreciation figured off.

In other words, the farm's profit has jumped over 300 percent since the first year the soil conservation plan was put into operation.

And before that, according to Harry Hogue of Eau Claire, a member of the county welfare board, the farm was doing well if it broke even.

These gains were made, too, despite the fact that Peapples has had to buy all new machinery for

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Note.—The author is farm editor, *News Palladium*, Benton Harbor, and the *Herald Press*, St. Joseph, Mich.





**Welfare board receives farm plan from district chairman: Left to right—Harry Hogue, banker and board chairman; John Warmen, welfare board secretary; Floyd Morley business man and member of welfare board; Gale Peapples, county farm manager; John Handy, chairman of St. Joe River Soil Conservation District; Joe Carver, automobile dealer and member of welfare board.**

the 433-acre farm. All tools on the farm were horsedrawn when Peapples arrived, and up until just this year he has bought about as much machinery each season as the budget would stand. Now the farm is well equipped and machinery expenses will decline to just replacement needs.

In addition to the financial statements, other signs are visible all over the two separate tracts that make up the farm to show what big changes have taken place on the county farm.

The dairy barn and milkhouse are spotlessly clean. The herd of registered Holstein cattle is sleek and fat. And Peapples and his herd manager, Earl Daniels, are hoping to win the North Berrien DHIA's trophy this year for the herd showing the biggest increase in butterfat. Two months ago the county farm herd had the highest butterfat average of any of the large herds in the testing association for the month of May.

Early this summer, a 27-acre field of red clover yielded 95 tons of hay in the first cutting. That's slightly over  $3\frac{1}{2}$  tons per acre. An average yield for most farms is 2 to  $2\frac{1}{2}$  tons per acre.

The wheat yielded 38 bushels to the acre this year—not as high as some farmers got this season

but a yield that doesn't require any apologies in this area. Last year it ran 40 bushels.

The farm now provides all the food used in the county hospital and the infirmary, except for a few specialty items such as lettuce and the like. Last year the farm filled the meat needs in both institutions with 47 beeves and 98 hogs.

Before the soil plan was instituted—in 1948—the farm furnished only 17 beeves and 34 hogs for the hospital and infirmary. And the farm then couldn't produce even enough feed and grain to carry an average of about 75 head of dairy and beef cattle. Now the two herds run between 110 and 120 head the year around and every bit of feed is produced on the farm, except commercial concentrates.

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**CARDS SIMPLIFY WORK.**—The Marathon County (Wis.) Soil Conservation District, distributes printed "request-for-service" postcards at meetings. Last year 60 percent of the layout work resulted from the cards. This year about 90 percent of the work is expected to be scheduled from the cards. A dozen soil conservation practices on which field services may be desired, are listed. There is also a space for indicating the kind of machinery that will be available at the farm on a specified date.



# The Lake that is Here to Stay

*A modern city—Shawnee, Okla.—stops erosion on land bordering reservoir and helps speed conservation throughout watershed. Good water, good fun, and good revenues are the result.*

By LESTER FOX

MUNICIPAL officials can avoid headaches and save money by understanding rural land problems.

This is especially true of the kind of costly reservoirs which many cities have built in the past 35 or 40 years. Numbers of such reservoirs have been abandoned, superseded by newer and bigger ones because inadequate attention was given to Nature's fundamental laws.

Shawnee, Okla., had an interesting experience from which much can be learned.

This modern city built its \$800,000 Shawnee Lake in 1936 to provide an adequate supply of water and to establish a scenic center for recreational activities. The lake was counted on to produce the revenue needed to finance most of the city's services.

But things didn't work out that way. With the first rain, the city's headache began. There was one thing that the city fathers had overlooked: soil erosion! The land in the 13,000-acre watershed was so badly eroded, including the city-owned 1,600-odd acres around the reservoir, that every time it rained, Oklahoma's red soil came washing down into the lake by the carload.

In 1947 the Soil Conservation Service made an exploratory survey which showed that because the lake had a large capacity in proportion to its drainage area, it was filling up with sediment at the low rate of only 25 hundredths of 1 per cent a year. That was favorable. But sandbars were forming where streams entered the lake and sediment was piling up at many points along the shore, leaving private boat landings high and dry.

What was particularly vexatious was that the red soil entering the lake remained mostly in suspension. That made the lake an ugly sight, and the task of filtering the water a difficult and costly operation.

So, instead of getting the extra revenue expected, the city had to dig deeper into its funds with each passing year for chemicals and labor just to settle the red mud in the water at its filtration plant. And no matter how much the water was filtered, it was still discolored when it was piped to home and business.

The 1,300-acre lake itself was so repulsive because of its dirty red color that only a very few persons ever ventured to fish in it. Only a handful of the residents who leased the city's lake sites went



This is Bill Moran.

NOTE.—The author is in the information division, Soil Conservation Service, Fort Worth, Tex.



ahead with plans to build cabins. People weren't smiling when they referred to the lake as the "mud hole."

Late in 1950, the city began to apply modern conservation measures on its land around the lake. Seeing the benefit of such a program and wishing to cooperate with the city and the Shawnee Soil Conservation District, most of the farmers in the watershed have adopted or speeded up the application of their own conservation plans. The common aim was to stop erosion and increase the land's productivity.

Now Shawnee Lake sparkles like a gem. Cabins, some of them beautiful summer homes, dot the shoreline. Thousands of people throng to the lake for recreation. The water piped to home and business is clear. The city again takes pride in its lake.

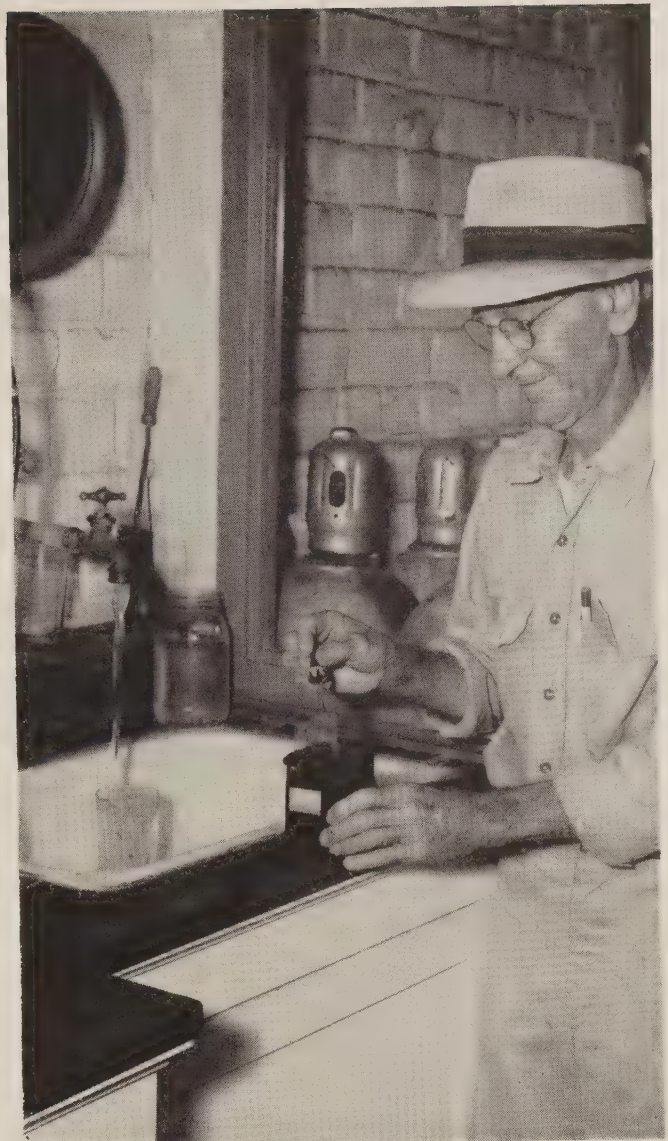
"We estimate that the conservation work is worth \$15,000 a year," says Willard B. 'Bill' Moran, city manager. "Savings in costs, plus an increase in revenue resulting exclusively from greater use of the lake for recreational purposes, have enabled us to expand our municipal services, increase our personnel, and buy new additional equipment."

Savings exceeding \$3,000 in the very first year after the conservation work was begun more than repaid the city's initial appropriation of \$2,200 to start the program. Second-year savings far exceed the entire sum—\$8,500—that the city has invested in its conservation project to date, including labor, equipment and materials.

Figures compiled for 1952 by Water Superintendent Lester Barngrover show savings in operating costs of \$14,827.16. Revenue from use of the lake for recreation increased \$3,283.50 in 1952 over the 1950 total. These two sums add up to \$18,110.66. Deducting the 1952 cost of the conservation work, \$3,125, leaves a net gain to the city of \$14,985.66.

Cost of conservation work will go down soon when the program is completely installed and put on a maintenance basis. Savings and revenue, on the other hand, may continue to increase somewhat before a maximum is reached. Sale of grass seed harvested on its land will bring additional income.

In 1950, after years of mounting expenses due to increasing loads of silt, it cost the city \$11,043.99 to purify and pump 582,918,000 gallons of water. In October of that year the city began its conservation program.



**Tom McBride makes hourly tests.**

In 1952 the city spent only \$4,716.83 to purify and pump 693,551,000 gallons of water. Thus it cost \$6,327.16 less to supply 110,633,000 gallons more than in 1950.

The amount of alum used at the filtration plant to settle the mud dropped from 269,900 pounds in 1950 to 53,600 in 1952, lime from 177,250 pounds in 1950 to 29,800 in 1951. Now another chemical has replaced *lime* at half the 1950 cost.

*In addition to the \$6,327.16 already noted, the city saved \$8,500 in wages and water, making the year's total savings \$14,827.16.*

"Before we began our conservation work," Moran says, "we had to clean the large settling basins at our filtration plant four times a year, the water was so thick with silt. Every time we cleaned them









year ten thousand fishing permits were sold at lake headquarters. A concessionaire also sells fishing permits, keeps 10 percent of the take, pays the city 10 percent on boat rentals. Other income is derived from the sale of confections, soft drinks, beach and boating accessories and fishing supplies at lake headquarters.

Boat races, now held annually under sponsorship of the Shawnee Boat Club, attract five to six thousand persons, and net around \$2,500 which is used for further improvements at the lake.

In 1950 use of the lake for recreational activities brought the city \$1,792.50. Two years after the conservation work was started, the revenue had jumped to \$5,076, an increase of \$3,283.50 or 183 percent.

Only 3 years ago Shawnee's townspeople were taking a dim view of the lake. Mayor and commissioners were glum. But Bill Moran was still hopeful. He had read in the Soil Conservation

we lost 1,250,000 gallons of water that could have been pumped through our meters to the people of Shawnee. Now we clean the settling basins only once a year, saving 3,750,000 gallons of water.

We're saving half a million gallons a year in backwashing our filtering basins. As this is water that has been treated with chlorine, we also save the chemical.

"The time required for treating and filtering our water has been reduced about 25 percent. That amounts to the same thing as a 25 percent increase in the size of our plant. *In other words, we are now able to pump in any 24-hour period about 25 percent more water than was possible before.*

"Although we have more than a 2-year supply of water without additional rain, we consider water in storage of great value. We feel that we have an obligation to conserve all the water possible, for we have learned from the experience of other cities that the day may come when we will need all the water we have in storage. When it comes to water these days, every drop counts."

With the lake a scenic attraction, its use for recreation has increased tremendously. Every day five or six hundred persons enjoy its fishing. Last



**Far left.**—Program protects and encourages wildlife; sign explains quail project (see pen at left) of Pottawatomie Sportsmen's Club. **Above.**—Caretaker sees if automatic quail feeder needs refilling; this one is on cabin grounds of Adam Hornbeck, business man and known nationally in sportsmen's circles. **Center.**—One of the attractive summer homes on the lake. **Below.**—Joe Mondonca and Danny Hinkle enjoy some good fishing.



(Continued on next page)





Once an abandoned cottonfield, sending a lot of red soil down to the lake, this site now is covered with a thick stand of indiangrass, little bluestem, and switchgrass.

Service reconnaissance survey report that a coordinated soil conservation program applied in the watershed could reduce erosion by at least 50 percent.

Moran went into a huddle with the mayor, city commissioners, Water Superintendent Barngrover, a few civic-minded citizens and Roland E. Lee, head of the Shawnee office of the Soil Conservation Service.

Lee assured the group that the whole problem could be solved but only if the city were willing to enter into an agreement with the Shawnee Soil Conservation District to work out and apply an integrated conservation plan. The district, he explained, could provide help in its own right and obtain the assistance of SCS specialists.

"But," Lee cautioned, "we can't lick this thing over night and we can't get anywhere trying to do the job piecemeal." He had in mind the city's ineffective stabs at the problem in the past.

Everyone at the conference found new hope in Lee's assurance. The mayor and commissioners were enthusiastic. They quickly set aside funds to start the work, signed an agreement with the supervisors of the soil conservation district, and mapped out a comprehensive 5-year plan with the technicians.

The work started in October 1950. A little later, when they had a vacancy to fill, the commissioners pointed to Bill Moran and said, "You're our new city manager." To their surprise and relief, he took the job. Ever since he has vigorously pushed the conservation program with the full support of all the city officials, organizations and the public. In recognition of his outstanding service to Shawnee, the City Managers' Association of Oklahoma elected him their president in 1953.

Main part of the city's conservation program has been seeding the land to grass to give the soil a thick, protective covering. This blanket of grass protects the land against the force of rain that blasts barren soil loose and then washes it away. The long grass roots guide the rain deep into the soil, where it is stored and released slowly and evenly to keep the water in the lake at a stable level.

Now, for the most part, the rain that runs off the surface of the land is clear when it reaches the lake. As the conservation work progresses, this runoff will continue to decrease and will carry less and less sediment into the lake until siltation becomes negligible.

As part of the overall program, the city has built 79 desilting basins near the bases of gullies that



require a long time to heal. The sides of the gullies have been sloped and seeded to grass. Twelve miles of diversion terraces have been built above the gullies to keep water from pouring into them from higher ground.

The conservation program also serves to protect and encourage wildlife. Various sportsmen's groups cooperate directly in this phase of the project.

(Continued on page 142)



**Russell and Betty Currie, farm kids, on an old boat landing. Sediment here is 10 feet deep, a grim reminder of what was happening before the conservation program was begun.**

The desilting basins, actually small ponds, catch the runoff from the mending gullies. The sediment settles in the bottom of the basin. Above a certain level in the basin, the water flows over a grassed spillway that sifts the sediment out before it reaches the lake. By the time the basins fill up with sediment, in 8 or 10 years, the gullies will have completely healed under a thick robe of grass and there'll be no more washing of soil, Lee explains.

Firebreaks have been built all the way around the city-owned land, to protect grass and trees. Fire used to burn over the whole area every year, damaging what little protective covering the land had. The city has provided a fire truck at lake headquarters, and members of cooperating sportsmen's clubs stand ready to help put out any blaze that starts.

"Not more than a small patch has been burned over since we began our conservation work," says Moran.



**Lester Barngrover, water superintendent.**



# Recurring Theme in Empire State

*Farmer after farmer has found that there is only one sure way to success on the land—through adherence to a complete conservation plan. Good farmers, all, it took a soil conservation district and correct techniques to put them on a safe and profitable basis.*

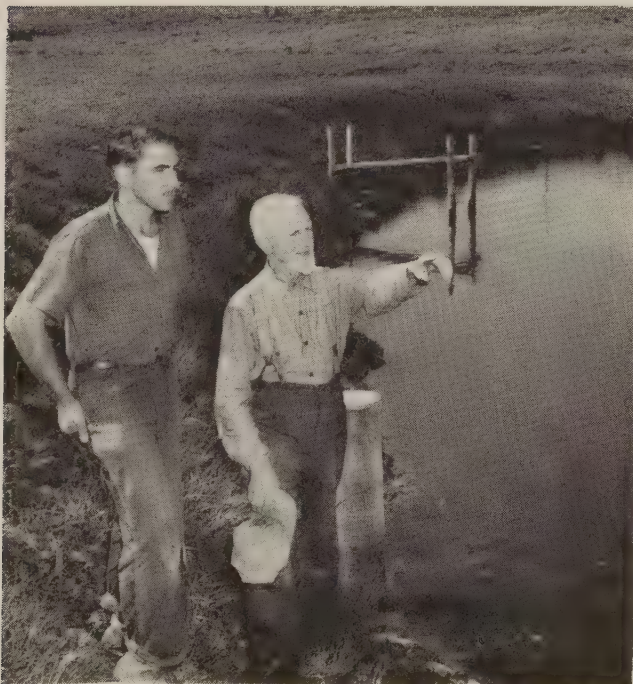
By HUGH F. EAMES

**A**CROSS the length and breadth of New York State agriculture, in which 26 thousand farmers with 3,600,000 acres are teamed together in 38 soil conservation districts, one common lesson has been learned.

George Comings, Bainbridge dairy farmer and breeder, is one of those who have found, often the hard way, that land is their one great asset and that they must use it right, and treat it right, if they are to make the most of it. Otherwise, they can destroy its productivity during their careers, to the vast loss of themselves and those who follow.

No matter what their chief enterprise may be, these farmers have found that the right type of

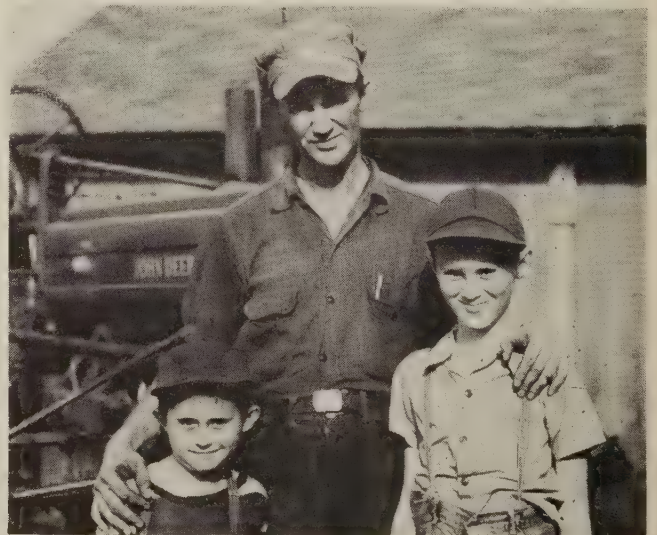
NOTE.—The author is in the information division, Soil Conservation Service, Upper Darby, Pa.



George Comings and his son, Philip.



Brown brothers, Bob and Walt.



Walter Buss and sons.



livestock, the best adapted strains and mixtures of grasses and legumes, and the right varieties of fruits and vegetables, are not enough in themselves. Fleets of modern labor-saving equipment, abundant use of sprays, lime, fertilizers, and other chemicals and manure, a long growing season and a fair break in weather will help, but not win the battle. All these farmers know that *success comes only when each acre of farm land is handled as carefully and skillfully as an animal being fitted for prize competition at a state fair.*



Mrs. Herbert Stolzenberg and sons, Herman and Carl.



George Higby, his son Albert (at right), and Albert's cousin, John Hill.

I've been to see 30 or more of these New York farmers within the past year. From my notes—all adding up to the same conclusion—I cite briefly here a few representative experiences.

For nearly 25 years, George Comings tried to become a successful breeder of dairy animals. He put almost all his time, effort and resources into work with the starting herd of three purebred Holsteins that he brought from Wisconsin. He left his eroded 160-acre hilly, hard-pan and water-drenched land pretty much on its own. Comings bought most of the feed he needed, and didn't get very far toward his goal.

In 1941, when he ran out of personal resources George sought the missing link in his enterprise. Through the newly formed Chenango County Soil Conservation District, he found that it was in *the use and treatment of his land.*

After 3 years of hard work under the program that the district helped him make, his enterprise began to click. *In the last 7 years he has annually won Progressive Breeders' Registry honors in recognition of achievement through an improved breed-*

*ing program based on production, testing, type classification, and herd health for advancement of Holstein-Friesian cattle.*

What was a below average upland Chenango hill farm, has become one of the county's top-ranking dairy enterprises. George Comings tells you that his over-all success springs from using each acre according to its capabilities and treating each acre according to its needs.

Again—

Two young farmers, Bob and Walt Brown, who operate a 350-acre dairy farm at Tioga Center, are demonstrating how expenditures for feed for their herd of 41 milkers can be cut to a twelfth of their monthly milk check. This is unusual in an area where the average dairy farmer spends a third to a half of his milk check for feed.

The Browns have followed a complete conservation plan since 1950, in cooperation with the Tioga County Soil Conservation District. Diversions have been built, and striperopping established. Forty acres of wasteland have been cleared, renovated and developed for top production of hay and





**Ken Jenkins in driver's seat.**

pasture, with the rest of the farm in other crops. The whole job cost only \$600 in cash.

From one 8-acre tract, the Browns harvested 750 50-pound bales of hay this year. Second growth produced the equivalent of 500 more bales. Last year a 4-acre field yielded 800 bushels of ear corn. Two 65-ton silos are filled with corn. Nearly all the needed roughage and grain are home-produced. Fifty more milkers will be added to the herd when 30 more acres are cleared and put in production.

Another New York farmer, located at Alton, Mrs. Evalyn Gatchell, has made full use of the facilities of the Wayne County Soil Conservation District. As a result, her 165-acre Jim-Eva Farm includes diversions, contouring, drainage ditches, mulching, pond for spray water, and grassland improvement. *Her acres have been put to their best use.*

Drainage tile leads into a 350,000-gallon pond which, in turn, supplies water for spray. Improved grassland increases the production of hay for an extensive mulching program in the orchards; thus the need for buying nitrates is cut down. Mulching in some orchards is 18 inches deep. Mother of Wayne Home Bureau and a pioneer in Wayne Farm Bureau, Mrs. Gatchell has held executive posts in the State Farm Bureau and in other rural organizations.

Continuing the examples—

When Walter Buss, a veteran of the last World War, needed a small ditch to get his dairy cows out



**John Kovac and grandchildren.**

of the mud, he asked the Otsego County Soil Conservation District for some help. The technician working with the district, saw beyond the ditch to a whole broad program of contour strips, better pastures and other work, which Buss would have to have before he could make a go as a dairyman. The complete conservation plan that Buss is establishing on his 120 acres is the result. Fifty-one acres of good pasture, and grass-corn-oats rotations have been developed, and the herd has grown from 18 to 41 head.

In 1948 Buss bought hay to carry his small herd; now, with a higher number of animals, he has plenty of hay, pasture and silage, as well as good yields of oats and corn. The average milk production has soared. From a 3-acre patch of birdsfoot trefoil and timothy last year he harvested 460 60-pound bales in two cuttings.

Buss is one of about a hundred GIs in Otsego who now have a chance to make a real success farming because of modern techniques made available through the district.

In 1940 Charley Wood, a farmer of Alpine, tried out the conservation idea on a troublesome 4-acre hill field. He found the system so beneficial that, in cooperation with the Schuyler County Soil Conservation District, he has since put all of his 124-





**Tom Utter and Leon Barkley, old hands at working together.**

acre farm under a complete conservation plan and is giving four other farms that he has bought and one that he leases, the same treatment; altogether, about 500 acres of conservation farming.

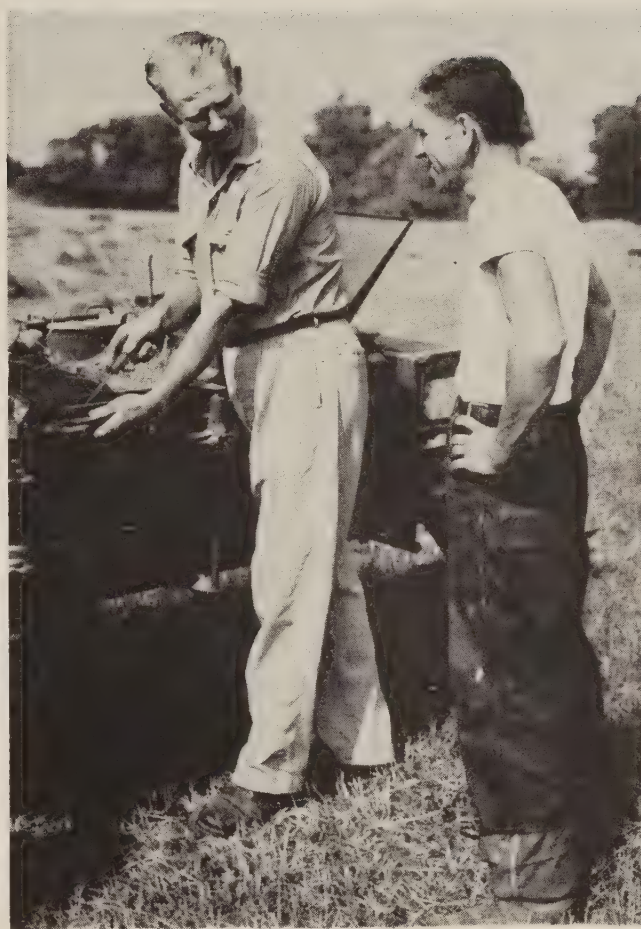
From a start with 14 milkers in a 22-head herd, he has built to 55 head with 30 milkers, and will add 6 more to the group. On the small hillside area where he gave conservation practices their try-out, he has harvested 800 bales of hay a season. Where  $1\frac{1}{2}$  tons per acre previously was considered a good yield, he now gets 3. Wheat and oats production have doubled. Annually he puts up about 6,000 bales of hay and all the silage his herd will eat. *He says he has had a sevenfold return on cash invested in establishing conservation practices.* When he spends \$1,000 more he will have the complete plan working for him.

While helping himself, Charley also has done a good turn for Schuyler taxpayers. In bygone years, after each hard storm, a highway crew worked several days shoveling topsoil washed from Charley's field out of road ditches. For 10 years now these workers haven't had that job to do.

Another instance—

When Herbert Stolzenberg, a New Jersey electrical worker, got caught by unemployment during the depression, he turned to farming for a career, though he had no experience in it.

He began at Gallupville, with a run-down 95-acre place. He had mighty tough going for 2 years. Then, with guidance from technicians from a CCC camp, and later from those with the Schoharie



**Del Hammond and partner, Jerry Lovejoy.**

County Soil Conservation District, he established a complete conservation plan in 2 years.

At the start, the Stolzenbergs had only two scrub cows for milk and butter needs at home. Their cash income came mainly from the sale of veal calves, and cream for butter. Since 1941 they have expanded the herd and shipped milk. They now have 28 head with 15 milkers, and plan to carry 50 with 23 milkers. Production runs about 11,000 pounds per cow per year. With a 70-ton silo full of corn, his pasture and hayland provide all the required roughage. All needed grain comes from home-grown wheat and oats.

Selective cutting of well-managed farm woodlots has produced timber for building five new farm buildings and repairing others. Black locust plantations in reforested areas yield all the sturdy fence posts needed. Since their father's death, two sons, Herman and Carl, are operating the farm with guidance of their mother. They do not intend to return to the city.



Another example—

In the midthirties, when his farm production was slipping steadily as a result of loss of topsoil, wearing down of fertility, and cutting of gullies, Stanley Peck, a farmer of Avoca, turned for relief to technicians at the USDA conservation farming demonstration project at Bath.

Peck established his first diversions and contour strips in 1936 and 1937, and began at once to get the production he urgently needed. That's why he has bought three other farms, where he is establishing similar conservation practices as rapidly as time and means permit. Now he has 140 acres in contour strips, 7,800 feet of diversions, and 600 feet of outlets. All his land is protected against the storms which once caused havoc.

Stan has milk production from 22 cows in a 37-head herd. He has 80 acres in potatoes, 60 in grain, and 100 in grass. Corn goes into silage and, with the grass and corn and oats, gives the herd year-around support.

Consider George Higby—

Higby, located at Turin, has found two ways to get paying crops off land that previously had been unprofitable. By digging a series of ditches, as a cooperator with the Lewis County Soil Conservation District, he has converted a 30-acre bog, that was of no value to him, even in dry years, into a unit of high-yielding grass and grain which supports 40 Jersey milkers and 30 young animals. The drainage cost Higby \$800.

Selective cuttings from 200 acres of farm woodlot, yielded the lumber for a shelter house, dock and float for his farm pond, and for improving a shed to house young dairy animals. On top of that, Higby has a 1930 planting of seedlings from which he is ready to make a cutting of marketable pulpwood, 20 cords to the acre.

High above Lake Cayuga, on the Ulysses plateau, another farmer, Del Hammond is reclaiming a farm that was rated among the very best in the county a hundred years ago. He expects to reach his goal in 5 years.

Through neglect and abuse, Hammond's farm was in pretty bad shape when he took over in 1946. Production was close to a complete washout. Working with a complete conservation plan, developed with the help of the Tompkins County Soil Conservation District, he has boosted yields 100 to 200 percent. From 25 bushels per acre, wheat

has gone to 50. Well fertilized corn produced 40 bushels per acre in 1949; now he's getting 100. Last year he filled a 140-ton silo from 7½ acres of corn. Hay production, once ½ to ¾ ton, has jumped to 3 tons per acre. He carries nearly three cows to an acre of pasture; grasses them in rotation on small stripped fields. One choice strip provides 10 days' grazing, a fresh tenth being pastured every day.

There are 86 acres of strips in crops and grassland—72 on contour and 14 in even-width field strips. Forty to 50 tons of lime and 12 to 15 tons of fertilizer are applied annually. There are cover crops and rotations, and many acres of wasteland have been turned into high production through clearing and renovation.

I visited Ken Jenkins, near Wyoming—

Early in the depression, Ken Jenkins quit his bank job and returned home to help his father struggle with a rundown, 300-acre hill farm. The place had been taken over by sorrel, milkweed and moss, and was heavily saddled with debt. He tried poultry, dairying and cash crops, but it was no go. Five years of successive flash floods helped sap the soil's fertility.

Then came the new ideas—brought by SCS technicians, the Attica CCC camp, and the Wyoming County Soil Conservation District. Beans, sheep and poultry disappeared. Grasses and legumes took their places. Dairy cows returned. The herd has grown to 70 animals, and a start has been made with 50 beef cattle. Corn and oats are on their way out; certified birdsfoot trefoil, brome and



Enoch Christensen (left) and Leverne Stark, of SCS.





**Charles Zimmer in hayin' time.**

wheat seed are filling gaps. New life has come to the orchards. Grazing is in rotation, on strips. Now Jenkins has full grazing seasons, year after year.

Further evidence—

John Kovac, of Cherry Valley, took over a once highly productive 200-acre farm that had been sabotaged through years of neglect and abuse. The situation appeared so hopeless that he was not required to make a down-payment.

Now, after 8 years of conservation, Kovac no longer buys hay and grain for his livestock. He's producing all he needs for a larger herd. From a start with beef culls—16 milkers and no young stock—he has built a mixed herd of 26 milkers and 10 young animals. His first cow-testing report showed a herd average of less than 5,000 pounds per cow per year. Now it is 9,000 pounds. Per acre grain yields average 50 bushels in oats, 45 in wheat and 150 in ear corn. First cuttings of grass fill a 250-ton silo.

From farm earnings John Kovac paid for his farm and a fleet of good equipment, put his buildings in good shape, sent two daughters through college. Since the start, he's been chairman of the Schoharie County Soil Conservation District, "without which," he comments, "Schoharie agriculture would be in a pretty bad fix."

Here's an interesting case—

Tom Utter, dairy and poultry farmer on Lake Waneta, worked hard for 10 years, without progress, trying to reestablish the productivity of his 105-acre farm that had been neglected through years of tenancy. Finally, he established a complete conservation plan, at a total cost of \$1,324, for extra hired work. His plan licked erosion and permitted him to rebuild fertility. His grass and grain production almost completely supports his dairy herd

of 26 head, including 14 milkers which produced 139,206 pounds of milk in 1952. His 600 laying hens produced 10,000 dozen eggs for market last year.

Important to his farm's recovery, Tom Utter says, are 60 acres of contour strips, 6,400 feet of diversions and open ditches with safe outlets, 2,025 feet of tile drains, 30 acres cleared and developed for pasture, rotations and cover crops. He carries 14 milkers on less than 7 acres, and cuts 2½ to 3 tons of hay per acre. All farm work is handled by Utter and one year-around hired man who has been with him nearly 25 years. A terrific comeback as a result of scientific land use and treatment!

In the late 1940's, Charles Zimmer, dairy farmer near Owego, couldn't produce enough grass, corn for silage and grain on his 138-acre farm to carry his 20-head herd through winter. He rented 12 more acres, but still couldn't fill the hay mows and silo, still had to buy a lot of grain. But in 1953, with a second silo, and a larger barn, he produced so much hay, and corn for silage, that he couldn't jam all of it into his storage space! He's taken a healthy slice off his bill for bought feeds.

What caused this difference in his situation? The answer can be seen on a 34-acre hillside field. Erosion and depletion of fertility had made it unproductive. It had grown up to weeds, brush and tough wiry grass. It contained hedges, stones and brambles.

Today this field is operated as one unit, 1,900 feet wide and 1,600 feet deep, brought in full use and production through conservation practices established in cooperation with the Tioga County Soil Conservation District. The cash cost was \$200.

More than 4,600 feet of diversions and outlets and 46 acres of contour strips help Zimmer get full value out of lime, fertilizer and manure. He's producing three times as much grass per acre, and twice as much corn silage as he did a few years ago. His 24-head herd is yielding 16,000 pounds of milk monthly as compared with 7,000 a few years back. He's now ready to handle and support a herd of 30. Here, again, conservation planning wins!

After 17 years of outstanding success in "gentleman" farming near Washington, D. C., and in Long Island, Maryland and North Carolina, Enoch Christensen went to Chenango county in 1945 and bought a 440-acre hillside farm in Unadilla valley, largely because it resembled rural landscape in his native



Denmark, and because a realtor told him that "those hills are full of gold." All but 40 acres were in steep hillsides.

Enoch promptly put 90 grade Holsteins, including 70 milkers, to work in the hilly pastures. By 1949 he was so disgusted with results that he sold the herd at auction and began to look around for something that could be done on "gold" laden hillsides, grown up to brush and tough, wiry grass. The Chenango County Soil Conservation District showed him how the trick could be done. Already he has cleared and developed 90 acres of pasture and hay land, is preparing to do the same work on 70 more. Diversions and outlets protect his hill land.

The clearing and renovation, including use of lime and fertilizer and herd manure, is producing all the hay and pasture he needs. Sixty rented acres are in oats. In 1951 and 1952 he bought only a little grain.

This production has enabled Enoch to get back into the dairy business with 110 registered Holsteins, including 60 milkers. He aims at 70 milkers in 125-head. The "gold" is coming out of the hillsides in the form of more and more milk. It's in terms of such annual production from an average 52 milkers, in the last years, as: 376,109 pounds in 1948, 448,168 pounds in 1949, 579,165 pounds in 1950, 602,514 pounds in 1951 and 603,700 pounds in 1952.

At the same time his grain cost in producing 100 pounds of milk was being slowed down this way: \$1.97 in 1948, \$1.30 in 1949, \$1.13 in 1950, 83 cents in 1951 and 80 cents in 1952. The cause of this outstanding yearly success, Enoch Christensen says, is "high quality forage from improved pastures and hay lands." One month of increased milk production, he declares, has paid for all of the \$1,000 worth of work done with farm labor and equipment. He values "pasture like I now have," at \$70 per day.

These are but a few of the farmers in New York State who are in business today only because they have learned to use their land within its capabilities and treat it according to its needs. They have been supported in their efforts by their soil conservation districts.

## LAKE HERE TO STAY

(Continued from page 135)

"Conservation," the city manager reminds us, "is a continuing job. You can never say that you

are finished. We started out in 1950 with a 5-year plan. We'll complete our program ahead of schedule. But we can't stop then. Various jobs will crop up from time to time and there will always be maintenance work."

Other cities, with a similar reservoir problem, have their eyes on thriving Shawnee. Some municipal officials have toured the Shawnee Lake watershed to observe conservation and its effects. City Manager Moran invites others to do likewise. He believes that Shawnee may be setting a pattern for other communities throughout the country.

**TELLING THE YOUNG.**—Mrs. Clara McCabe, Calhoun (S. C.) County librarian, is shown here receiving a gift of soil and water conservation literature from H. C. Geiger, Supervisor of the Calhoun Soil Conservation District, as an activity in the district's program for greater service.

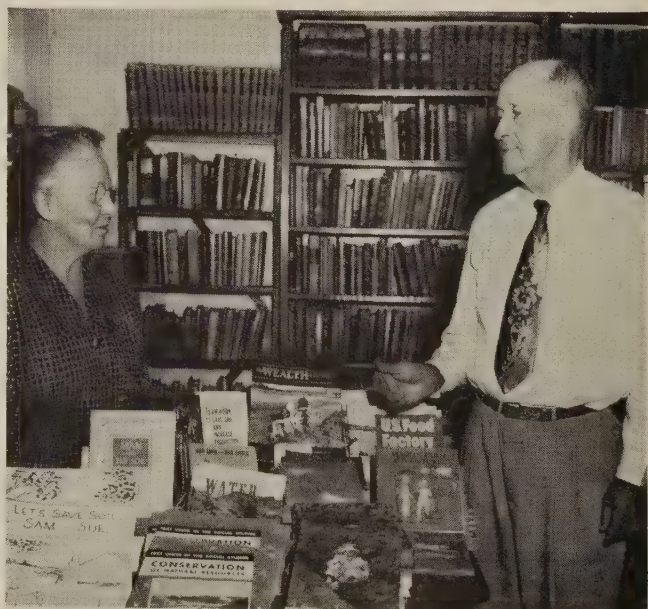
The purchase of the literature was made from district funds to which Supervisor Geiger made a large personal contribution.

"I don't have any children," Geiger said, "and I want to make a contribution so that other children may develop an appreciation of our natural resources and learn in their youth the necessity of conserving the soil and water."

Local business firms who purchased affiliate memberships in the district's program helped provide the money used to purchase the literature.

O. H. Weinges, heading the district's educational advisory committee says this is another way in which groups, individuals, and organizations can help get conservation before the people.

Mrs. McCabe is enthusiastically getting the literature ready for use among school children and is serving as member of the educational advisory committee.



H. C. Geiger presents a lot of good reading matter to Mrs. Clara McCabe, county librarian.



# REVIEWS

**A COMPREHENSIVE AGRICULTURAL PROGRAM FOR PUERTO RICO.** Nathan Koenig, 299 pp. Illus., 1953, Washington, D. C.: U. S. Government Printing Office, \$1.75.

The most important aspect of this lusty new publication is that it combines the thinking of a great many individuals,

with Use and Control of Water. Thus, at the outset, are marshaled the fundamentals, in order of importance. The remainder of the report puts the flesh on the bones. We are told of the opportunity for improvement and expansion of grassland farming, of the necessity for reversing the history of waste of forest resources, of the challenge to reclaim land which otherwise will lie idle.

There is much forward progress noted in the realm of agricultural credit and finance. Supervised credit on reasonable terms is provided eligible farmers for the acquisition, development, and operation of their farms. But there is a greater demand for family-type ownership loans in



**Contoured pineapples in Puerto Rico. (Photo by Forsythe.)**

representing various agencies of the Government of Puerto Rico and the United States Department of Agriculture. It is intended to summarize the overlapping studies of some 100 technicians on the island, working through 14 so-called task forces. Out of their information and recommendations Nathan Koenig has shaped a report which offers an exceptional and convincing degree of perspective. It is readable, well organized, amply illustrated, and pleasing to the eye. It is calculated to point a way to rural progress for a people beset with a multiplicity of terrestrial and economic problems.

More than 2 million people live on less than 3,500 square miles. There is more wall than floor to the usual Puerto Rican farm. Much of the land, therefore, has gone to pot as a result of erosion. And it is the land that holds the people's destiny. On its use, its treatment, depends the future. There is general agreement on this point. There is also general agreement that present use is at fault, that the whole agricultural economy needs revamping, that marketing and distribution of the land's products need improvement.

The Koenig report is both realistic and humanitarian. It keeps foremost the welfare of the individual. The sequence of the opening chapters runs: The People and the Land, These are the People, This is the Land. Chapter IV, the first of the brass-tack sections, deals with The Problem of Soil Erosion; the next chapter concerns itself



**Cutting sugarcane, leading crop. (Photo by Agr. Ex. Serv., University of Puerto Rico.)**





Typical tobacco farm. (Photo by Agr. Ex. Serv., University of Puerto Rico.)

Puerto Rico than present funds permit. The report suggests greater participation in the farm-mortgage program by private banks and other local financial institutions. Crop insurance, too, plays an important role although it is now available only to coffee growers.

In dealing with the potentials, Koenig emphasizes the desirability of substituting "improved techniques of production for outmoded traditional methods" and sees the necessity of some shift in land use. Each acre calls for reexamination as to its use and treatment. A vast store of information is available from the Puerto Rican agricultural experiment stations and other sources and is waiting to be applied. Notwithstanding its availability, and the fact that considerable progress has been made, particularly since the establishment of soil conservation districts, the big task of improvement is still ahead. Sugarcane is the major crop, and sugarcane farmers have advanced more than other farmers, but even these producers are not getting the yields that are possible. Koenig holds that with increased yields of sugarcane per acre, the marketable tonnage of sugar could be harvested from less land and a large acreage could be released for other agricultural purposes. He suggests a new pattern of production geared to the needs of the *total* market, both export and domestic. As of now, the emphasis is largely on production for export.

Far too scant attention has been given to the problems of organization and marketing of Puerto Rican produce. There is an excess of intermediary handlers. High markups are the rule. Retail outlets are innumerable and most of them handle small sales volumes. Expensive inefficiencies prevail in distribution.

It is well to have such realistic and factual information in such convenient and understandable form. It comes with a supporting body of detail, and carries the ring of authority. This is the first time, it is said, that so extensive and up-to-date a picture of the Puerto Rican agricultural

situation has been developed in a single volume. The picture is not wholly dismal. It has its lights as well as its shadows. And because the book is so well written, it will be read.

There is a good deal of common-sense talk. For example:

"But irrespective of what any or all of the governmental agencies may do, the success of a program for agriculture has to be measured against what is actually accomplished on the land and among the people themselves. Without the necessary cooperation from farmers and others, little progress can be made. But if people are to cooperate they must have an understanding of purposes and objectives and need, also, the leadership that will guide and inspire them into action.

"Experience in working with rural people has demonstrated that the best and most effective kind of leadership is that which comes from among the people themselves in their own communities. It is such rural leadership that makes it possible to organize for action from the bottom up."

There are ideas here which ought not to be allowed to gather dust.

—WELLINGTON BRINK

**THIRD LAND SCHOOL ANNOUNCED.**—Oklahoma City will again play host to farm youth and adults from at least 20 states at the third annual national land-judging contest and land-appreciation school next spring. Contest dates are April 29-30.

Cash awards totaling \$1,800 will be paid winning 4-H and FFA teams and individuals. This year for the first time regional awards amounting to \$400 will be paid top FFA and 4-H teams in each of the four regions of the country. Top team in each division will receive \$50. This will be in addition to the \$1,400 regular prize money paid highest placing teams and individuals.

Details of the contest were announced by Sandy Saunders, WKY Farm Director, and Edd Roberts, Extension soil conservationist, following a meeting of the contest committee. First place teams will receive \$250. High individuals get \$50.

There will be separate judging divisions for adults, with women competing in a class of their own. Plaques and trophies go to adult winners.

Another free barbecue and entertainment will feature the 1954 event. Last year more than 2,000 contestants from 16 states participated in the judging, and officials expect a sizable increase next April.

Sponsored by the Oklahoma Publishing Co., this novel method of judging land has spread to several other states and to a few foreign countries. It is developed on the theory that land can be judged just as cattle are judged, and boys are taught to look for and recognize certain physical characteristics of the soil just as judges do in livestock.

Any county or parish in states outside Oklahoma can enter one FFA and one 4-H team. Further information may be had by writing Edd Roberts, Stillwater, Okla., or Sandy Saunders, WKY, Oklahoma City, Okla.

—EDD LEMONS





**February 1954**

# SOIL CONSERVATION

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE



# SOIL CONSERVATION •

**EZRA TAFT BENSON**  
SECRETARY OF AGRICULTURE

**DONALD A. WILLIAMS**  
ADMINISTRATOR, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE  
U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

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**WELLINGTON BRINK**  
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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### TO ENCOURAGE RESEARCH STUDIES.

—The National Wildlife Federation has announced that there will be available for the school year 1954-55 four graduate "Ding Darling" fellowships in conservation education of \$1,000 each and one James Hopkins undergraduate scholarship of \$500.

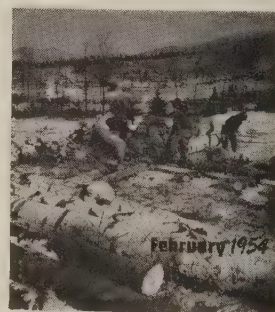
Application for fellowships or scholarships must be on file at the offices of the National Wildlife Federation at 232 Carroll St., N. W., Takoma Park, Washington, D. C., by December 31, 1953. Applications must have the approval of the project by the director or the departmental head of the university.

These scholarships and fellowships are supported in part by the sale of the Wildlife Stamps issued annually by the National Wildlife Federation, by a permanent grant yielding a limited endowment and by other income available to the Federation, the amount of which cannot be determined before the beginning of the year.

The scholarship funds may be used for the normal expenses of an undergraduate but a report of the work done should be sent to the Federation at its completion before July 31, 1955.

The fellowships are designed to support research studies in the field of conservation education. Awards are naturally made to individuals who can show best records of

(Continued on page 149)



**FRONT COVER.**—Gordon S. Smith took this photograph in February 1952, on the John Fortin dairy farm off Grange Road, Lancaster, N. H. Logs are still being salvaged from the celebrated storm of November 1950. This farm is in the Coos County Soil Conservation District.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.



# He Built Back His Farm

By ROLAND E. LEE



Technician Lee and Kessler Teas take a look at fine field of sericea lespedeza. The pasture also contains native grasses. This was formerly badly eroded and depleted.

**I**N 1941, because of the military drain on manpower, Mr. and Mrs. Kessler Teas found it hard to get help for their grocery business in Tecumseh, Okla. They thought it would be a good idea to acquire a small family farm and get away from their business worries. So they sold their store and bought 40 acres a short way east of town.

They found the farm to be a new kind of problem. The land was badly eroded and almost completely wornout. The year before 10 acres had been in cotton and 3 acres in sorghum feeds; the rest was abandoned and grown up to ticklegrass. Small gullies were everywhere.

"The first year I tried to grow cotton on those same 10 acres," Teas recalls. "I harvested 3 bales in two pickings. If I hadn't had some money coming in from my grocery store accounts, I couldn't have made it. That would have been the end of my farming."

The next year Teas stopped trying to grow row

crops on eroded land of little fertility. He began dairying, bought seven cows. He also purchased 40 adjoining acres, and 2 years later still another 120 acres, giving him a farm of 200 acres.

Teas made little more than taxes until 1949, when he signed an agreement with the Shawnee Soil Conservation District to apply an overall conservation plan to his farm. As a cooperator with the district, Teas received the help of skilled technicians in working out his conservation program.

Today Teas has 22 cows, 13 heifers, a registered Holstein bull. Usually he milks 18 cows, each averaging 4 gallons of milk daily.

On his 200 acres, plus 35 acres that he rents, Teas produces 2,000 bales of hay, 50 tons of ensilage, 30,000 pounds of oats, wheat and barley for feeding his cattle, and 10,000 pounds of hairy vetch seed. He keeps enough vetch seed for his own plantings and markets the rest.

Teas has green grazing all year except in January and February.

NOTE.—The author is work unit conservationist, Soil Conservation Service, Shawnee, Okla.





**Kessler Teas had this sort of thing to contend with when he bought his farm. He is using diversions and other measures to heal the gullies.**

"It takes about 2,000 bales of hay, 30,000 pounds of small grains and 40 tons of ensilage to get my milk cows through winter," he says. "In the summer I reduce the daily feed to 100 pounds of grain mixed with hay and molasses. To the dairy feed I add the usual minerals. I'm feeding much less feed than do the farmers around here who have not im- pounds of 20 percent phosphate go wherever he plants sericea lespedeza.

Major parts of Teas' operations are—

*Soil improvement.* He grows soil-improving crops on all his land in turn, using hairy vetch with rye and with wheat.

*Soil treatment.* He limes and fertilizes in accordance with laboratory tests showing the needs of the soil. All pastures get 2 tons of lime per acre; 200 pounds of 20 percent phosphate go wherever he plants sericea lespedeza.

*Rotation.* In a given area he grows hairy vetch and rye for 2 years, oats and Korean lespedeza for 1 year, followed by sudangrass; then he goes back to vetch with either rye or wheat.

*Pasture improvement.* After establishing a good stand of grass, Teas mows to control weeds, and limes and fertilizes as needed. Grazing is kept in balance with the quantity of green forage available.

*Grazing control.* Teas has fenced his farm in 11 pastures to give flexible control of grazing. In this way he can rest a pasture when it should be allowed to seed to maintain its vigor.

*Gullies.* After establishing a grass cover above the gullies, Teas slopes the sides with a bulldozer and seeds them to grass. The blanket of grass fends

off the runoff and permits the gullies to heal. Above one gully that was especially deep and wide, he built a diversion terrace to send water to a proper outlet.

Here's a typical example of Teas' achievement in remaking eroded and wornout land into a productive and profitable farm:

A 12-acre field was in ticklegrass and spotted with persimmon brush, as a result of erosion and depletion. Teas fenced the field early in 1953 to put it completely under control. Then he cleared the persimmons and sloped a gully to permit mowing of persimmon sprouts. Next operation was to one-way the land, apply 200 pounds of phosphate per acre, and sow hairy vetch and wheat in September to condition the soil. Next spring he will overseed with native grasses.



**Teas tunes in radio in milking parlor. He finds that music calms the cows while they are being milked.**





**Registered Holsteins on sudangrass. Teas' pastures, because of conservation management, maintain good grazing despite drought.**

"You can't plant grass now because it wouldn't grow, the soil's so poor," Teas explains. "So you have to condition the soil first."

Teas gets winter and spring grazing from hairy vetch, rye and wheat. In summer and fall his cattle graze on bermudagrass, Korean and sericea lespedeza, sudangrass, big and little bluestem, indiangrass and switchgrass. Through conservation

management, he had ample grazing throughout a prolonged drought.

"Although I was brought up on a farm, I didn't find things easy because the land was so rundown," Teas confesses. "It wasn't until I started my conservation work that the farm started paying off. Now I wouldn't take three times as much as I paid for it."

**IRRIGATION EXTENDS GRAZING.**—Because he irrigated, Frederick Winthrop, of Hamilton, Mass., in the same 16-acre pasture, with the same registered dairy herd, and the same grass mixture, during a severe drought got 78 more days of grazing in 1949 than he did a year earlier. From a 60' x 100' x 8' by-pass pond, a tractor-mounted motor pushed 500 gallons of water per minute through 6-inch mains and 4-inch laterals and distributed 1 inch per acre, at a pumping cost of 98 cents per hour for 1 acre-inch of water. Each of the 6 even sections set up for rotational grazing, received 27,000 gallons of water. It took one man 15 minutes to shift the laterals from section to section.

Twenty-five milkers were turned into the pasture in early spring. Irrigation was started May 17 and used 6 to 10 hours daily until July 12, when it went on an alternate-day schedule. Each section had been seeded to smooth brome and orchardgrass, ladino and creeping fescue before the 1948 grazing season. In 1948 without irrigation, Winthrop got 9 tons of hay and 61 days of grazing for 27 milkers. Next year, with irrigation, the same area produced 139 days of grazing for 25 milkers, with 15 additional animals pastured 35 days in June and July. There was no let down in quality or quantity of milk produced, and the animals maintained weight.

In 1950, the system was used the same length of time with the same good results. Weather was more ideal for

grass and less irrigation was needed in 1951. In 1952, irrigation was used more than in any other year, with the same outstanding benefits. As a result, the system has been extended to other pastures and the herd size has been increased.

## TO ENCOURAGE RESEARCH

(Continued from page 146)

accomplishment in the field of conservation education and who are qualified for and preferably accepted for graduate school studies. A typewritten copy of the results of the study or a report of progress must be submitted to the Federation by the grantee by July 31, 1955. It is probable that at least one award will be closely identified with education and journalism and their contribution to conservation education.

**PARTY-LINE SCHEDULING?**—Don Kesinger, farm planner in the Warren (Ill.) Soil Conservation District, found that when he used the telephone to make arrangements with a farmer for layout work, he was very likely to get calls from other farmers on the same line asking for help the same day. This suggests possibilities for using the rural party line to schedule work.



# *Donald A. Williams— Administrator*

By WELLINGTON BRINK

**N**OVEMBER 2 was an eventful day in soil and water conservation. It was then that Secretary of Agriculture Ezra Taft Benson took two notable steps:

1) He issued reorganization orders aimed at streamlining the work of the Soil Conservation Service.

2) He appointed Donald A. Williams as Administrator.

Williams, a veteran in the agency, is regarded as a logical choice to put into effect the Department's dynamic new land program, especially in view of the emphasis that is to be laid on water in general, and watershed protection in particular.

His objective is crisply stated elsewhere in these pages:

"We now propose to tackle the same conservation problems with a realignment of forces designed to help us reach our goal more rapidly and efficiently."

The conservation of our Nation's land resource has long been a warmly human and intensely personal undertaking. The movement owes much of its success to unique and inspired leadership, to a strongly-linked chain of individuals extending from top command down to the point of contact with each farm operator. This fact makes the Williams appointment still more noteworthy. He is in the Service tradition. He came up through the ranks. He worked at every level. He has the realistic experience he will need.

What does it take to make a well-rounded man—a blend of the "practical" and the imaginative? In the case of Don Williams, it means being born on a farm, growing up in a land of far horizons, getting one's education at a land-grant college, acquiring experience both in private enterprise and in govern-

ment. Each phase of his career has its own immediate value in the task ahead.

Donald A. Williams was born on a farm in Clark County, S. Dak., July 14, 1905. He had four brothers, all older. His father some years before had been foreman of the State College Farm at Brookings. Don grew up with a keen feeling for dirt farming and scientific research, and for hard work and its rewards.

After high school he worked briefly for an engineering firm, but long enough to confirm his pick of profession.

A scholarship helped, but Don really put himself through college by such things as working at a boarding house, in a dormitory, as a laboratory assistant, and as a student teacher.

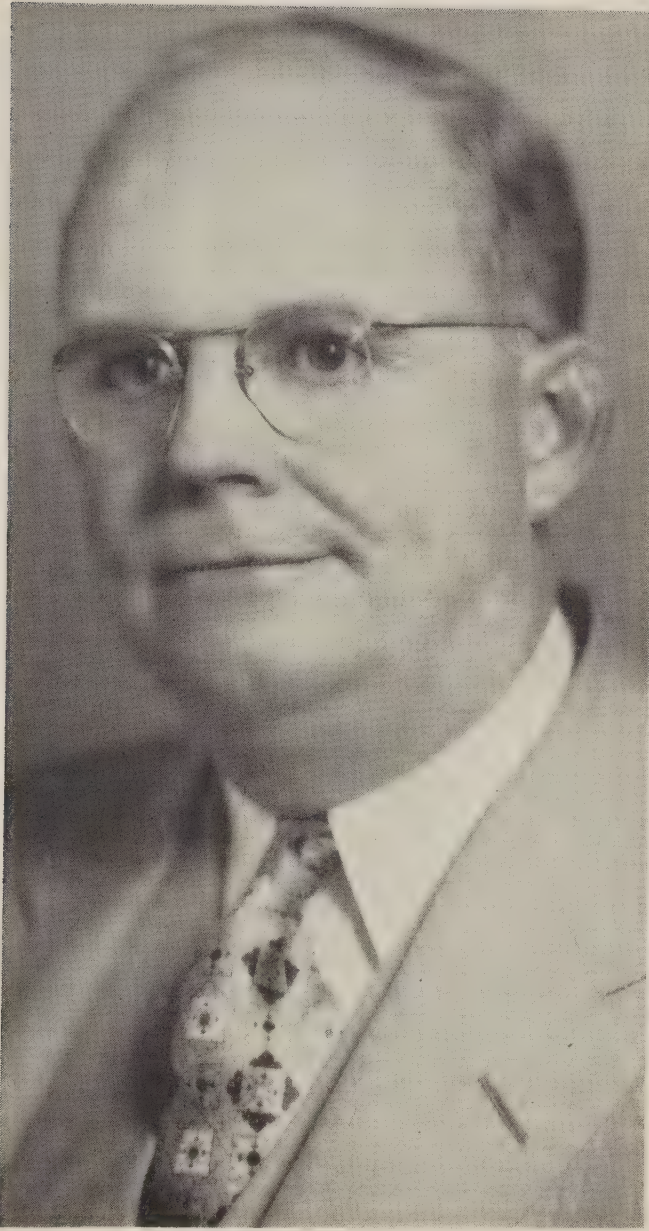
He studied to be an engineer, and made his mark as an honor student.

But of course he didn't confine his curriculum to the classroom; he is much too gregarious for that. He became a key man in campus life, got himself a reputation as a skilled debater, was tabbed for membership in Pi Kappa Delta, the National honor society in that field.

Graduating in 1928, Williams laced up his field engineer's boots and took a job with the Dakota Engineering Company. A little later he moved over to the drawing board of a design engineer with the Hassenstein Steel Company.

Don went back to State College, then over to the University of South Dakota, in pursuance of post-graduate studies. Came another period of service with a commercial engineering firm, followed by a term with the State Highway Department. He may not have been fully aware of it then, but Don Williams was laying, piece by piece, exactly the groundwork, following precisely the pattern of





**Donald A. Williams.**

preparation, calculated to fit him for the responsibility that was to come to him almost two decades later.

It was in the spring of 1935 that the Soil Conservation Service was made a regular, permanent member of the family of the Department of Agriculture. Don that year was one of the specialists—engineers, agronomists, foresters, biologists and others—then being recruited, trained, and assigned all over the country to help farmers keep their soil from blowing and washing away. He joined a spirited, rather extraordinary army of young technicians who were making a crusade out of the pro-

gram of soil and water conservation. A new profession—soil conservation—was in the making; at the same time, floods and dust bowls were shouting their challenges. The combination was irresistible to many a young fellow, and Don Williams threw in his lot with the Service with confidence in its high destiny.

Don's orders took him to the Pacific Northwest—a land lighted with the flame of discovery and receptive to agriculture's new adventuring. He was, successively, field engineer, irrigation specialist, assistant regional engineer, chief of the regional water conservation division, assistant regional director. Through 15 years he worked in "the field"—Montana, Idaho, Washington, Oregon—where he gained an intimate understanding of techniques, administrative methods, problems and results under the regional system. He was as concerned with water as with soil, helped to develop what came to be known as "conservation irrigation." He gained standing in his profession. He participated in the Joint Investigation of the Columbia Basin Irrigation Project. He served on numerous land and water committees. He became chairman of the land sub-committee of the Columbia Basin Inter-Agency Committee, of which Governor Douglas McKay, now Secretary of the Interior, was a member.

After 15 years with the Service in the west, Don Williams was brought east and borrowed for a special assignment as flood control officer by the Secretary of Agriculture. Duty discharged, Don came back to the Service in July 1951, taking over all technical operations work, with the title of Assistant Chief.

The last 30 months have been crowded ones. Throughout this time, Don Williams has had an increasingly strong administrative hand in the Department's conservation activities. He served on the Secretary's Committee for Training in Administrative Management, on the Secretary's Committee on the Rockefeller Awards, and on the Department's Board of Civil Service Examiners. Early in 1953 Secretary Benson felt that he needed Williams to head up the Agricultural Conservation Program—a 250-million-dollar business which was then facing a stage of reorganization and which desperately needed not only sound administration but Williams' particular blend of talents and backgrounds. Williams carried through his assignment quietly, and modestly—but just about everyone



in the Department knew he was doing an A-1 job.

You'll find the Administrator in the latest editions of Who's Who in America and of Who's Who in Engineering. Better still, you'll find him high in the esteem and in the hearts of Service and Department people. For Don not only is able, he is very human also. He claims no hobbies, but he does fuss around in his yard in Arlington, Va.—and he fusses extra long with his roses.

Don keeps temper and voice under control, weighs his judgments carefully. He weighs 12½ stone, stands five-nine, and looks at you from steady gray-blue eyes. His hair is somewhat in retreat. He is amiable except when he has fully decided that amiability is not in order. He's a bear for getting things done—and that's the kind of people he likes to have close around him.

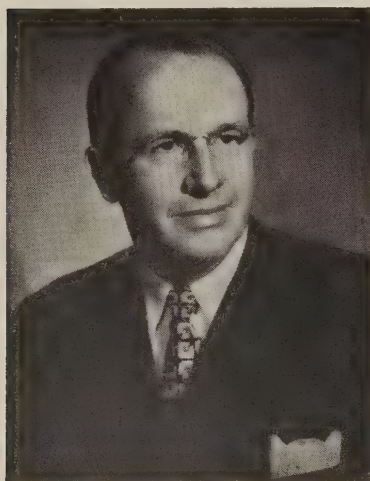
He married Ruth Christianson in 1934, and they have a 13-year-old daughter, Mary Kathryn. They're busy, too, with such things as Camp Fire Girls, P.E.O., and Presbyterian Church.

Don Williams is a dedicated person. He believes in what he is doing. He believes in America and in the American land, and in the future of the National program of soil and water conservation. Although it will entail infinite sweat and toil, as in the past, Williams thinks it very possible that the

finest days of the Soil Conservation Service are yet to be. There can be a rewarding future, he sincerely feels, for the young professional who will start today where he himself started nearly two decades ago—out in the fields lugging a transit or making notes for a conservation farm plan.

In the Williams lexicon, *how* something is accomplished is usually less important than that it be accomplished. But with his own hearty knack for working with people, he has small patience with agencies or individuals who cannot or will not cooperate to attain a common objective. He has a vast admiration for the front-line boys—not only in the Soil Conservation Service but in other organizations, as well—who are out there battling long hours every day, every week, to lessen the ravages of lawless streams and reduce the losses of productive soil. And he's far from being alone in his lofty estimate of soil conservation districts as the finest manifestation of rural democracy in history.

It's a long battle, and rugged—this countrywide drive to save the land and put it to its most productive use. But the Secretary of Agriculture has gone a long way toward winning the common objective by providing the forces of conservation with a leader of substantial mold.



**Hon. Ezra Taft Benson.**

*The Department of Agriculture recognizes a strong national program of soil and water conservation as one of the basic necessities of American agriculture. The purpose of this reorganization is to strengthen the soil conservation program and the Soil Conservation Service and to bring the administration of the SCS technical assistance program closer to the farmer.*

—HON. EZRA TAFT BENSON,  
*Secretary of Agriculture*





**G**LADWIN E. YOUNG is the No. 2 man in the Soil Conservation Service. The newly-designated Deputy Administrator has been an assistant to Assistant Secretary of Agriculture J. Earl Coke since April 1953. He is a native of Lafayette, Ind., and a graduate of Purdue University. Prior to his appointment to the Department of Agriculture in 1934, he spent several years in land economics research at Purdue Agricultural Experiment Station. Most of his career in the Department was spent in the old Bureau of Agricultural Economics. He is well known in the Department for his work in flood control.

From 1946 until early in 1953 Young was the USDA representative on the Missouri Basin Inter-Agency Committee with headquarters at Lincoln, Nebr.





Former campers explain how they teach conservation.



Conservation officers describe legal and illegal methods of trapping fur bearers along a stream.





Dr. Fowler.

# The Iowa Teachers Conservation Camp

By H. SEYMOUR FOWLER

**Y**OU have to see, feel, and live with the soil to learn its meaning. Every summer a group of teachers combine pleasure with education. What they learn, they are then prepared to pass along to the youngsters in their classes.

It takes many persons and many organizations working together, to present an effective program of conservation education to teachers. The Iowa Teachers Conservation Camp is the joint responsibility of Iowa State Teachers College, the State Conservation Commission, and the State Department of Public Instruction—and these are only three of a large number of agencies and organizations included in the program.

A State planning committee for the camp is active throughout the year. Many agencies and institutions are represented on this group. One of its faithful members is Kenneth E. King, of the Soil Conservation Service.

Anyone who knows the "Corn State," realizes that it was blessed with more than its share of

productive land. No other State has so high a percentage of high-class, productive land. Because of this, our staff at the camp feels that our students should have first-hand experience with soils as a resource.

The location of the camp is ideal for studying soils since three different soil associations are available for observation within a 20 mile radius. Our camp is 60 miles northwest of Des Moines, in beautiful Springbrook State Park.

Many students are surprised that our course in conservation should have its beginning in a study of rocks. This surprise vanishes when they realize that soils largely are composed of decomposed rock. To understand soils one must first know something about rocks. Some time also is spent in a study of glaciation as much of Iowa's soil was brought in by glaciers many years ago.

From rocks our students go to soils. The State soil scientist usually assists. One of the first things to be learned is how soils are formed. Much of the instruction is done in the field. Campers learn

NOTE.—Dr. Fowler is director of the Iowa Teachers Conservation Camp, Springbrook State Park, Iowa.



Teachers travel about 1,000 miles during each 3-week session. Here Dr. Charles Gwynne, geologist from Iowa State College, tells a class about the country through which it is traveling.





**A typical group of good conservation campers.**

to judge the texture of soils, not by reading about it, but by actual feel. Soil profiles are observed and studied. Campers soon become acquainted with the language of the soil's man. Within a few days that which sticks to the shoes when walking through wet cornfields is no longer mud or dirt but good, black Iowa soil. One of the fine things about these experiences is the fact that they are under the direction of an authority—an employee of the SCS. He devotes his time willingly to the project, and freely disseminates his missionary conservation spirit. He and his co-workers are well aware that the teachers will take the soil conservation story to those who will soon be responsible for the care of the land, our present day school children.

After securing certain basic soil information, campers take to the field again under the leadership of the soil scientist. This time three different soil associations are studied. The campers learn that certain soil types occur together in an area, just as certain plants and animals are found in association.

But, you may say, if the teacher has all of these facts about soils, shouldn't she also know how these facts are put into action by the man who manages the land? The answer, of course, is yes. Here's where the work unit conservationist comes in. He guides the teachers on a visit to a farm which is managed according to a conservation plan. Here they observe terraces, strip crops, cover crops, plantings on the contour, grassed waterways, and a farm wildlife area. The work unit conservationist, using the map of the farm, explains the "why" of the farm plan. After this trip many of the things concerning soil which had been discussed in earlier trips seem to take on even greater significance. Of course, at the conclusion of the unit on soils, time

**Right.—A great sandstone outcrop tells the story of the past.**

**Below.—Soil scientist explains soil texture.**







is devoted to discussing how all of this information can be worked into the school program.

Many of the teachers attend camp on scholarships donated by some of the 100 soil conservation districts in Iowa.

The pattern of cooperation is evident throughout the 3-weeks camp experience. Numerous agencies assist in making the camp program successful, meaningful, practical, and worthwhile.



# Reorganization Aims at Fast, Effective Service

By DONALD A. WILLIAMS

Administrator, Soil Conservation Service

Our immediate and continuing purpose is to make certain that reorganization accomplishes its intended goal—more effective service in soil and water conservation to the farmers and ranchers of the United States.

Change in organization does not alter conservation problems. We now propose to tackle the same conservation problems with a realignment of forces designed to help us reach our goal more rapidly and efficiently.

As we prepare to move forward in this new framework, it is essential that we focus sharply on the *problem* and the *goal*. We must have a uniform understanding of the responsibilities, philosophy and intentions of the Department of Agriculture so that we may be able to do a better job of carrying out our assignment in the soil and water conservation program.

The Department recognizes a dynamic national program of soil and water conservation as one of the basic necessities of American agriculture.

ALL our efforts to improve crops, reduce costs, and expand markets depend finally on how well we manage and protect our soil and water resources. Effective protection and improvement of our soils and management, and development of water, are keys to maintaining the kind of an agricultural production plant that can successfully meet the demands of a growing population and an expanding economy.

The soil and water resources of the United States are the foundation blocks on which our entire economy stands. They are the source from which comes all food, most clothing, and much of our shelter.

How well we protect and improve these resources in the years ahead will have a direct bearing on our standards of living in the towns and cities, as well as on the farms and ranches of the United States.

It is not our purpose to save soil for the sake of saving it. Soil is of value only as it produces something for man to use. The goal of soil and water conservation is to protect and build up soil productivity to sustain efficient and abundant yields of crops and livestock products. In working toward that goal, we must also work toward the protection and improvement of watersheds, as a means of reducing flood and sediment damages and safeguarding water supplies for both urban and rural use.

The national interest demands that measures for soil and water conservation be applied on all the agricultural land in the United States as rapidly as possible. The Department recognizes its responsibility and is determined to help the farmers and ranchers of this country carry out such a program.

The Soil Conservation Service has a highly re-



sponsible part to play in the Department's program. We are assured that it is to continue as the agency through which the Department will channel its technical service to the farmers and ranchers and to the watershed groups throughout the country.

Experience has demonstrated that most soil and water conservation problems are complex. They usually cannot be solved by generalized techniques. The problems differ from farm to farm and field to field. Their solution requires skills and knowledge that farmers cannot be expected to possess. Their solution requires the combining of information from such fields as soils, engineering, agronomy, range, biology, hydrology, geology and economics. Data from these sources must be blended into practices that in turn must be fitted to the capabilities and needs of the soil, and the farmer, for enduring conservation.

The Department of Agriculture has the important and necessary job of assembling, training and directing the work of a corps of technicians who are skilled in the science and application of soil and water conservation. That is the function of the Soil Conservation Service.

Our proper and successful performance of these responsibilities requires a thorough understanding of several basic concepts which are the core of the Department's soil and water conservation program.

One of these is the definition of soil and water conservation upon which this program is based. At the beginning of our national soil conservation program, emphasis was put on overcoming the severe menace of soil erosion. Experience taught us that erosion control practices are necessarily related to other soil management and land use practices. Other forms of soil deterioration must be attacked along with soil erosion.

Thus, the scope and practice of soil and water conservation has gradually broadened through the years until today the objective, as Dr. Hugh H. Bennett, founder of this Service, so aptly represented, is "to use each acre of agricultural land within its capabilities and treat it in accordance with its needs for protection and improvement."

The concept of soil conservation has come to mean proper land use, protecting the land against all forms of soil deterioration, rebuilding eroded and depleted soil, improving grass and woodlands, conserving moisture for crop use, proper agricultural drainage and irrigation where needed,

building up soil fertility, and increasing yields and farm income—all at the same time.

Modern conservation farming has come to mean not only building and maintaining soil productivity, but also increasing standards of farm living for now and for the future. It means efficient, abundant production on a sustained basis as an integral part of the national welfare.

A second basic concept in the soil and water conservation program is the essential initiative of farmers and ranchers themselves. The final responsibility for achieving the objectives of soil and water conservation rests with the people who own and operate the land. A national conservation program, however urgent its need, cannot have force in a democracy unless it is accepted as the individual responsibility of the man who uses and manages the resources.

It is the policy of the Department of Agriculture to encourage and aid farmers and ranchers to plan and apply conservation farming measures, but to do for them *only* those things which need to be done, in the public interest, which local people cannot do for themselves. We believe that people who own and operate the land will accept the responsibility if they are fully informed and are provided with the kind and amount of assistance needed to supplement their own knowledge and resources.

Local organizations of farmers and ranchers help them to accept and carry out to the fullest degree their responsibilities for local leadership and initiative in soil and water conservation. Soil conservation districts are voluntarily organized but have legal responsibility under state law for developing and carrying forward a district-wide conservation program. These districts have proved to be a highly effective device through which the government can serve farmers without dominating them.

The Soil Conservation Service makes its assistance to soil conservation districts available under terms of memoranda of understanding. In these agreements, SCS agrees to assign and to supervise trained conservationists and supply them with the facilities necessary to help farmers and ranchers in the district plan and apply technically and economically sound conservation measures. On its part, the district determines its needs and develops a district-wide program aimed at the solution of local soil and water problems. Its governing



body administers the affairs of the district, determines work priorities, maintains records, and otherwise implements the local soil and water conservation program.

The technology of soil and water conservation has advanced rapidly in recent years. But additional and improved information is still needed to give greater precision to the planning and application of conservation measures.

To be permanent, soil and water conservation measures must be based on sound technology developed through research and experience. The Soil Conservation Service seeks, and uses, information from whatever authoritative source it may be available. To strengthen soil and water research, all research formerly in the SCS has been transferred to the Agricultural Research Service. We must establish effective procedures for insuring that soil, water and related research reflects the problems of farmers and that research findings are rapidly applied to the solution of those problems. We shall cooperate to the fullest degree with the Agricultural Research Service in expediting a two-way flow of research needs and research information.

Special attention must be given to gearing the conservation program and recommendations to specific local conditions. In this connection, the Soil Conservation Service will coordinate its technical program to the fullest extent with the research work of the State experiment stations.

We will maintain an active program of liaison with all research agencies in any effort to speed this process as much as possible.

The program of the Soil Conservation Service is basically one of technical assistance. In order to sustain efficient, high level production, land and water use and management must be related specifically to the pattern of soil and water resources of the individual farm or ranch, as well as to the resources and aptitudes of the farmer and rancher himself.

Throughout the country there are wide variations in climatic conditions. Thousands of different kinds of soil exist. There are wide differences in soil type on individual farms in slope, degree of erosion, drainage, availability of water, inherent fertility, and past land use.

Dr. Salter, our recent Chief of SCS and an eminent conservationist, has pointed out that there are three principal phases of technical assistance

needed by most farmers. I concur in his analysis and would like to review it with you.

The first is a scientific inventory of soil and water resources adapted to the purpose of developing a sound and economical plan for conservation farming.

The second is assistance in determining the safe alternative uses and treatment for the land based on this scientific inventory, and assistance in selecting and combining into a practical plan those measures which will protect and improve the land resource, contribute most to a sound management program for the farm, and aid in the solution of watershed and other resource problems of the community.

The third is technical help in applying complex practices such as water-control systems, drainage systems, terraces, and certain crop, pasture, range, and woodlot practices.

Furnishing this on-site technical assistance for soil, water, and plant management aimed at soil protection and improvement, water conservation, flood prevention, and economic production on a sustained basis, is the primary job of the Soil Conservation Service.

It is the policy of the Service to assist farmers through a system of progressive planning which permits a farmer to start gradually and move progressively into a full, well-rounded conservation farming system.

We must not lose sight of the fact that conservation practices are not an end within themselves. A farm pond or a tree windbreak has to serve a specific purpose to be justified. Each measure must be practical and should return at least cost in time and money. The sooner that proper conservation practices are applied, the sooner they start paying off.

It is also important to remember that most conservation practices are related, one with another, and the effectiveness of one often depends on the proper installation and functioning of another. Mechanical structures, frequently needed in erosion and water control, for example, must usually be supplemented and stabilized by the use of grass or other vegetation if the practice is to have lasting benefit.

Conservation is a teamwork job. It can only be accomplished by harmonious working relations of government and farmers. The government's part of the job consists of more than the technical



assistance phase. The educational and financial assistance phases are also of primary importance.

Soil conservation education is a fundamental step toward the application of conservation measures on the agricultural land of the United States. The conservation education job is to help all the people, both rural and urban, understand the needs for and benefits from conservation farming.

Education plays an important role in informing farmers and ranchers of the principles and practices involved in soil and water conservation and in relating conservation measures to the other features of good farm management. Education can aid supervisors of soil conservation districts in more effectively discharging their responsibilities and in planning and carrying forward their district programs.

The educational phase of the soil and water conservation program is the primary responsibility of the State and Federal Extension Services.

The Soil Conservation Service can discharge its responsibilities for technical assistance most effectively when it is complemented by an effective educational program which helps farmers to understand the benefits from conservation and the principles underlying the conservation practices.

An effective educational program, on the other hand, helps farmers to build a sound program of farm management involving all technologies, geared to a conservation base. In other words, one complements the other. The better the educational job is done by the Extension Service, the better the Soil Conservation Service can assist farmers with their conservation job. The better the job of assistance is done by the Soil Conservation Service, the more the farmer can capitalize on a good program of education in the broad field of farm management.

To get conservation technology into action on more land more rapidly—as we must do to meet the future agricultural demands of the Nation—greater teamwork must be developed between conservation education and on-farm technical assistance. I consider the strengthening of this teamwork as fundamental to accelerating the soil conservation program.

In addition to educational and technical assistance, many farmers also need financial assistance to move into conservation farming as rapidly as their own welfare and the national interest requires.

A well-planned program for conservation farming on most farms calls for the application of practices that require considerable capital investment. Moreover, shifts to conservation farming often require temporary economic sacrifices since some time may be needed for returns from the new system to equal and exceed income from the old system.

Supplementary financial aid, for all practical purposes, must come from either public or private credit sources or from direct governmental cost-sharing programs.

There are today various forms of credit available from government agencies or lending institutions which farmers and ranchers can use to pay for conservation improvements. Much of our credit system, however, is not yet adequately geared to the repayment possibilities of conservation farming.

Furthermore, credit alone cannot fill the entire need for conservation financing. There are many farms where financial requirements of conservation exceed available cash or credit resources. Many of these urgently need conservation practices that will have enduring benefits to the public, as well as to the individual landowner. In those cases, particularly when there are community or watershed problems involved, it may be necessary and desirable for the government to share in the costs as a means of getting treatment applied in time to prevent further or irreparable damages to the soil and water resource.

In no other activity in our society is there greater need for harmonious teamwork between all segments of the agricultural community, between farmers and their government, and between agencies of government.

When we look objectively at the conservation problem, we see no necessary duplication between education, technical assistance and financial assistance in the government's efforts to help the Nation's farmers and ranchers move ahead with their conservation program. The job ahead simply involves making all three work harmoniously and effectively in speeding up the application of technology on the land.

The job ahead also involves further strengthening of local leadership and teamwork, such as is provided in soil conservation districts, watershed associations and other community and neighborhood teams of people whose full participation is essential to the success of soil and water conservation.

Our responsibility to the farmers and ranchers,



and to all the taxpayers of this Nation, for that matter, requires that we develop this teamwork as a means of providing the most practical, efficient service possible. Certainly the conservation job is too big for any one, two or three agencies or organizations—no matter how efficient they may be. It calls for the closest working partnership of local, state and national agencies, along with the soil conservation districts, watershed associations, conservation and farm organizations, and business, industrial, civic and educational groups. Everybody has a stake in the speed and success of soil and water conservation work.

Underlying the entire technical assistance program for which the Soil Conservation Service is responsible is a foundation of essential basic data about soil and water resources which we obtain through the soil survey.

A scientific survey and classification of the soils is necessary for the preparation of land capability maps for individual farms and ranches. The soil survey is essential for determining the applicability of technology acquired through research or experience, and for relating the problems of the farm or ranch to those of the watershed or community. In a broad sense, the scientific survey and classification of soils is essential to the appraisal of the conservation needs and production potentials of watersheds, counties, states, and of the Nation.

The Soil Conservation Service has the responsibility to meet the soil survey needs of all agencies concerned with land use and conservation. We intend to fulfill this broad responsibility.

Technical coordination must be provided at all levels in order to maintain a nationwide system for the description and classification of soils. Without this, the survey program cannot reach its maximum effectiveness as a way of transferring experience from one area to another and as a scientific inventory of national soil resources.

Close cooperation with state college workers in all phases of the soil survey will be maintained and strengthened.

The backlog of soil survey information is becoming low in many sections of the country. Speeding up this work, and completing the national land inventory is important not only to the development of soil conservation programs on individual farms, but also to watershed development, to the research programs of the Department of Agriculture, to the State agricultural colleges, and

to the action programs of all agencies concerned with land use. The Soil Conservation Service must be alert to every opportunity to improve and step up that activity.

Protecting agricultural lands and improvements in the upper watersheds of the Nation's streams and rivers from flood and sediment damage is a phase of the soil and water conservation job in which interest has developed rapidly in recent months. Leadership in this activity has been given to the Soil Conservation Service because the program is based on soil and water conservation measures on farm and ranch land, combined with supplementary off-farm measures for the retarding, control and disposal of water. The growing recognition of need for upstream watershed protection work has taken concrete form in the selection of a group of pilot watersheds in which the Soil Conservation Service has been instructed to develop this new type of program over a 5-year period.

The objectives of this new program for watershed treatment include:

1. Reduction to the fullest practicable extent of floodwater, sediment and land damages occurring in the watershed and down-stream.
2. Demonstration of the feasibility of local-federal cooperation and sharing of costs.
3. Testing of the effectiveness of control measures under the highly variable conditions of the different sections of the country and where they can be readily observed by the local people.
4. Accumulation and analysis of data on precipitation, streamflow, sediment loads, and flood peaks while the watershed is being treated and after it is completed to guide future flood prevention activities.

Local people, and local organizations—especially soil conservation districts—play a very large part in this program. Before the work can proceed, local people must indicate their willingness to sponsor the program, to provide necessary local guidance and leadership and to share the costs.

Interest in this new type of watershed program has spread not only among farmers but also in professional, industrial, business, educational and many other groups. The Soil Conservation Service bears a particular responsibility and faces a special challenge, as we enter into a new organizational



development, to insure that this watershed program receives proper attention and sound guidance.

Realignment of the Service organization offers some real opportunities for strengthening the national soil and water conservation program.

By giving the state conservationist more responsibility for program decisions, the work in soil conservation districts can be harmonized with that of other programs that operate on a State basis. It should further improve working relationships with the land grant colleges, as well as with agencies of State government and State-level representatives of federal agencies. This means that farmers and ranchers will not only benefit from better teamwork between several agencies in the State, but also that technical recommendations made on the farms and ranches will be more certainly geared to the needs and conditions of that particular State.

By strengthening the technical staff of each State office, more of the people who will operate solely within a State will be high-quality technicians. Since subject matter specialists will serve a group of States, farmers can be assured that the technicians serving soil conservation districts will continue to receive high-caliber technical guidance and training.

With increased delegation of authority to state conservationists, there will be greater flexibility in adapting Service resources to fit local problems within the State.

The regional aspects of the watershed flood prevention program are recognized. Seven watershed and engineering field servicing units will be maintained to service the flood prevention and watershed programs. The needs of watersheds and other inter-state services or programs will still receive the technical and economic advantages of staffs that serve more than one State.

As we proceed with the realignment of the Service, we can expect to encounter many problems. They will be challenging problems—problems without readymade answers. How well we solve those problems will determine how much we strengthen the Service program. I am confident that if all of us put our full effort into finding effective solutions we will strengthen the program materially.

The decentralization of *authority* to the state conservationists carries with it the greater *responsibility* for sound administration. We cannot separate responsibility from authority! The state conservationist of SCS cannot fulfill his responsibility unless he respects national policy and makes full and effective use of all the resources—technical and administrative—at his command.

Conservation is no one man's job; it demands the utmost of teamwork in a spirit of public service, the goal of which is ever ahead of us!

There is but one direction to go in soil and water conservation and that is FORWARD!

## DISTRICT PROFILE

MARION S. MONK, JR. of LOUISIANA



Mr. and Mrs. Monk and son, William Wheeler Monk.

MARION S. MONK, JR., has been such a successful farmer that he's better known throughout the South today than he was in the mid-thirties when he was a star football player at Tulane University. He's widely known now because he gives much of his time to organizations that are working for the benefit of Louisiana agriculture and all its individual farmers.

With his wife, the former Betty Wheeler, Monk owns and operates 3,400 acres of river bottom land at Batchelor, northwest of Baton Rouge. Yearly, he harvests 625 pounds of lint cotton per acre from 550 acres, 53 percent more than the State average yield. He gathers 60 bushels of corn per acre from



700 acres that are interplanted with soil-improving soybeans.

Monk gets high production from 1,200 acres of open and 300 acres of semi-open pastures. These pastures furnish ample year-round grazing for a herd of 600 beef cattle. The herd is made up of 450 brood cows and 150 heifers and bulls. Monk uses grade cows and registered Hereford bulls. The cows average an 85 percent calf crop. Monk sells all the steer calves and what heifers are not chosen for replacement stock. He markets the calves at 9 months when they average 450 pounds.

Pigs add to the productiveness of the Monk farm. The 44 registered Hampshire and Duroc brood sows average 8 pigs per litter twice a year. Monk's 7 registered boars are blue ribbon winners. At the 1953 Louisiana State University Livestock Show, Monk showed the grand, senior and junior champion boars. The 15 boars, gilts and sows entered made off with 14 prizes.

Monk's pastures yield 16,000 bales of hay a year besides crops of clover and Dallis grass seed. On surplus winter pastures, Monk takes a crop of oats and wheat seed.

All the stock—cattle, hogs, horses, mules—live off the farm except for a little cottonseed meal that is mixed with crushed corn for creep feeding the calves when clover grazing is not available.

The woodlands—gum, cottonwood and pecan—account for \$1,000 to \$3,000 a year.

That's mighty good production for a fellow who had never had any previous farming experience. Into it has gone a lot of hard work and careful planning. Most of Monk's land, when he took over, was depleted from generations of row-cropping without benefit of conservation. Much of it had once been in sugarcane. Some had been in woodlands that had been stripped bare in the days when the practice was to cut the forests clean. All of the farm was in need of a planned, coordinated conservation program that would put every acre to its proper use and treat every acre in such a way as to protect the soil and maintain or improve fertility.

Long hours of work, an open mind ready to listen to more seasoned farmers, and a willingness to depart from traditional methods no longer satisfactory, account for Monk's success in restoring old plantation land to high productiveness.

At Tulane University, Monk studied commerce and business administration—subjects that can be

put to good use by any smart farmer confronted with today's intricate markets and price systems. As a reminder of his football days, he still carries the watch given to him for his participation in the first Sugar Bowl game ever played, January 1, 1935, which Tulane won from Temple 20 to 14.

After finishing college in 1936, Monk was in the municipal bond business for a year and a half. Then he worked in New Orleans as a customer's man for a prominent Wall Street firm. He quit that job to become manager of the plantation he now owns. He and his wife bought the place in 1944. The present farm is composed of the old Lakeside, Torwood and Normandy plantations which formed part of a 10,000-acre tract the United States government granted to Lafayette for his services in the Revolutionary War. Part of the original tract was acquired by the Stewarts of whom Mrs. Monk is a descendant through the Batchelor branch of the family after whom the community where Monk makes his headquarters was named. Mr. and Mrs. Monk and their 13-year-old son William Wheeler Monk live in the original 18-room Lakeside Plantation home that was built in 1849 with iron work from Paris, finished lumber from St. Louis and rough lumber from the farm itself.

When Monk took over the farm's management in 1940, he often turned for advice to W. T. Nolin, farmer at Hamburg who had become a disciple of soil conservation and has served as president of the Louisiana Association of Soil Conservation District Supervisors and as a member of its executive committee.

Speaking of Nolin, Monk says: "I believe he was



**Ryan J. Jeansonne, SCS technician, and Marion S. Monk, Jr., inspect Dallis grass in a 60-acre field.**



the first in the State to advocate a grassland agriculture for all of Louisiana. He made me realize the need and benefits of soil conservation. Both he and Vernon La Cour, then doing agricultural work with the Tennessee Coal and Iron Company, got me so interested in conservation work that I went around trying to line up farmers to organize a soil conservation district for the Pointe Coupee and West Baton Rouge Parish area.

"Upshot was that the Upper Delta Soil Conservation District was voted into existence on May 3, 1947. These districts are sub-divisions of State government administered by a board of five supervisors who must be actively engaged in farming within the area. Two of the supervisors are appointed by the State and three are elected by their fellow farmers within the district. I was appointed by the State and at our first organizational meeting on May 23, 1947, I was chosen secretary-treasurer of the board. Our district began receiving help from the Soil Conservation Service on May 28, 1948."

Monk has been secretary-treasurer ever since. He has also been a cooperating farmer with the district since it began receiving SCS help. He was among the first farmers to sign an agreement with the district to apply a coordinated conservation program to his farm. It is to his conservation program that he attributes the high productiveness of his land.

Major soil conservation practices in Monk's conservation program include the use of soil-improving crops and deep-rooted legumes that help keep the soil open to prevent the formation of hard layers through which roots, air and water cannot readily pass.

Other major practices are crop rotations, including rotating pastures with row crops; improvement of pastures, including proper stocking rates, mowing regularly to control weeds, fertilization, cross fencing, adequate water supplies, and seeding grasses and clover where needed. The right kinds and quantities of fertilizers are applied to both cultivated land and pastures as the need for them is shown by soil tests. In 1953 Monk used 80 tons of 33½ percent ammonium nitrate on crop and pastureland and 40 tons of 20 percent phosphate on pastures.

One of the most important conservation measures, when coupled with vegetative practices, is drainage. Designed by Soil Conservation Service engineers, a drainage system of field and main



**Cultivating cotton on Monk plantation. Ditched for drainage, this 92 acre field had been in pasture for 24 years when it was planted to cotton last year. After it has been in cotton and corn 4 or 5 years, it will be put back into pasture for 8 years.**

ditches keeps excess water off all the cultivated and pastureland on the Monk farm.

The pastures are kept in such good condition that the average grazing rate, including both the open and semi-open pastures, is 2½ acres per cow the year around.

"On the improved pastures, we can stock at the rate of one cow to 1½ acres without any trouble," Monk says. "There's such lush forage that the cattle graze for only an hour in the morning and another hour in the late afternoon or early evening. The rest of the time they relax in the shade."

"We don't feed more than 4,000 bales of hay a year altogether," Monk relates. "We sell the rest of the 16,000 bales we grow."

Even hay production is included in Monk's rotation system: "We seldom cut hay more than 2 years running off the same piece of land."

Monk gets year-round grazing. From February to June, he depends on white Dutch clover, which in early spring is overlapped by Dallis and bermudagrass. The grass carries the livestock until the first heavy frost of fall, which occurs anywhere from mid-October to mid-November. In September and October he plants wheat, oats and American ryegrass to carry the livestock through December and January. Then the clover is ready again.



Monk follows this rotation plan for all the farm not in woodland: he grows cotton for 2 years and then shifts to corn interplanted with soybeans for 2 years. Then he goes back to cotton for 1 or 2 years, then to pasture for 6 to 10 years. Meantime he turns the soybeans and the cornstalks into the surface of the soil to add organic matter, and regularly adds fertilizer according to the soil's needs. All of this keeps the soil in good physical condition and at high fertility level. The result: high per-acre yields of all crops and lower operating costs. It's easier and cheaper to harvest a good crop than a poor one.

Monk is a hard, tireless worker. Neighbors will tell you that he's out in the barn at 5 o'clock in the morning and the last one there at night. He's thoroughly familiar with every phase of his farming operations. He knows the kind of soil he has in every field; he can talk about grasses and clovers with the best of trained agronomists. He can tell

you his cost and production figures without looking them up in his carefully kept books.

Because of his successful farming operations and especially because of his deep interest in soil conservation, he was elected president of the Louisiana Association of Soil Conservation District Supervisors in January 1953. He succeeded his neighbor and good friend, W. T. Nolin.

Monk is also president of the Pointe Coupee Cattlemen's Association. He is a member of the Louisiana Farm Bureau Federation and of the Louisiana State Mobilization Agricultural Committee. He is an advisory member of the Louisiana Bankers Association agricultural committee and of the State Production and Marketing Administration Committee. Besides his work in the agricultural field, he finds time also for community activities, such as serving on the Pointe Coupee Parish School Board.

—LESTER FOX

# Camp Polk Enlists with District

*Cooperative agreement is aimed at getting more grass and trees on land, controlling erosion, and making the soldier's life more pleasant.*

By CLINTON L. HARRIS

WHEN Major General Lea M. Kreber, commanding general of the 37th Infantry Division and Camp Polk, signed an agreement last October with the Calcasieu (La.) Soil Conservation District, he foresaw these results: improvement of the 144,000 acres comprising the camp, better conditions for the men under his command, and savings in expenditures for camp maintenance.

The general pointed out that the district agreement covered one of the largest land units ever signed up for a coordinated soil conservation plan. Robert D. Schaefer, chairman of the district board of supervisors, signed on behalf of the district.

The agreement calls for the application, over a period of years, of all measures needed to stop erosion, protect property, add to the efficiency and

welfare of the soldier, and restore and maintain the productiveness of the camp's land.

The agreement called for the planting of 15,000 loblolly pine seedlings in the first month of 1954. The trees and the tools to plant them with were to be furnished by the U. S. Forest Service. More of the cutover and denuded land will be put back in trees each year until all the areas needing reforestation have been planted.

Wherever possible, grasses are to be established on the rifle ranges. Post officers felt that the grass cover was needed not only to stop erosion but to reduce the number of heat prostrations with which the camp has been afflicted in the past. Soil Conservation Service technicians, who helped work out the comprehensive plan with district and camp officers, agreed that the covering of cool green grass would lower temperatures.

NOTE.—The author is work unit conservationist, Soil Conservation Service, Leesville, La.



Major General Kreber signs agreement with Calcasieu Soil Conservation District. Robert D. Schaefer, district chairman, who signed for district, is second from left. At far left is Calvin D. Carver, district manager. Standing is Lieutenant Colonel Herbert B. Eagon, liaison officer between Camp Polk and district supervisors. Paul Leach, supervisor, is at right. (U. S. Army photograph)



"Of benefit to Camp Polk will be the ultimate savings in funds that are now needed for extensive road and bridge repairs after heavy rains, such as those we experienced last spring," General Kreber said. The various interrelated measures to be applied will allow more of the rain to soak into the soil where it falls, reduce damaging runoff.

The overall plan includes the building of a large lake for training purposes, to encourage useful wildlife, and to provide recreational facilities. The Louisiana Department of Public Works is helping with this phase of the general conservation project, and agricultural engineers of the Soil Conservation Service will also help whenever needed, as will SCS agronomists and other technicians. The district is furnishing specialized equipment.

Post officers working on the project will consult with the technicians on such matters as the kind of grasses to plant, fertilization and the management of land and woodland. Steps have been taken to have an SCS conservation-forester attached to the office of the deputy post commander.

Lt. Col. Herbert B. Eagon, 37th Infantry Division planning and training officer, who acted as liaison officer between Camp Polk and the district supervisors, was formerly a district supervisor himself in Ohio, and an area vice president of the National Association of Soil Conservation Districts. He returned to civilian life last November.

**UP WENT YIELD.**—Seven years ago, Roger Gleason, Groton, N. Y., with the Tompkins County Soil Conservation District, was getting 15 bushels of wheat per acre and 50 bushels of shelled corn per acre off a 9-acre field, planted up and down the slope. He needed more than that, so, on his own and by eye, he laid out the field in 6 even strips, running across the slope. The outcome was 50 bushels of wheat and 90 bushels of shelled corn, at no increase in the amounts of seed, lime, fertilizer and manure. Two strips of wheat—3 acres—produced as much as the whole field formerly produced. Seed and fertilizer no longer washed down the slope. Quality is better. Gleason, impressed, now has asked the Tompkins County Soil Conservation District to help him re-lay the strips strictly on contour, because he believes that he will get an even better yield that way.

**LIKE FATHER, LIKE SON.**—As the years roll by, more and more father-and-son teams are being found in conservation work. Charles Clark, Celina, Ohio, professional trainee for the Mercer County Soil Conservation District, entered the Service last March after his graduation from Ohio State University, and attended the professional training center for one month this summer at the SCS hydrologic station at Coshocton, Ohio. His father, Clyde Clark, formerly a farmer near Urbana, Ohio, started part-time work for the Service in 1945, and in 1948 became a full-time conservation aid in Champaign County Soil Conservation District. He attended a sub-professional session at the training center in 1948. Charles' younger brother, Albert, farms the home place and his older brother, Robert, farms an uncle's farm in Champaign County.





Secretary Benson, President Eisenhower, and Assistant Secretary Coke at the water exhibit.

**DISTINGUISHED CALLER.** — President Eisenhower spent 20 thoughtful minutes on November 30 inspecting a watershed-protection exhibit in the patio of the administration building of the Department of Agriculture. His guides were Secretary of Agriculture Ezra Taft Benson, Undersecretary True D. Morse, and Assistant Secretary J. Earl Coke.

One feature of the exhibit was a 28-foot simulated relief map which portrays a watershed

program designed to retard the runoff of water so as to provide a more reliable supply of crop moisture both upstream and downstream, and at the same time help prevent disastrous floods.

The President, obviously much impressed by what he saw, is quoted as having remarked: "If we are going to write a whole water policy for the United States, we should show we mean business."

The Soil Conservation Service and other agencies cooperated in building and assembling the exhibit.



A black and white photograph of a man operating a tractor in a field. The tractor is moving from right to left, leaving a trail of dark, tilled soil behind it. The man is wearing a hat and is seated on the tractor, steering it. The field is vast and appears to be a recently plowed or tilled area. The text "MARCH 1954" is printed in a bold, sans-serif font in the upper right corner of the image.

**MARCH 1954**

# **Soil Conservation**

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SECRETARY OF AGRICULTURE

**DONALD A. WILLIAMS**  
ADMINISTRATOR, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE  
U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

## ★ THIS MONTH ★

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**WELLINGTON BRINK**  
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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**CITIZENS FOR CONSERVATION.**—Gerald P. Nye, former United States Senator from North Dakota, has been elected president of the newly-formed non-profit organization, Citizens for Conservation. Clarence C. Case is secretary, and Daniel W. Bell, president of the American Security and Trust Company, is treasurer.

Incorporated in the District of Columbia, Citizens for Conservation has been formed to promote the conservation of human and natural resources at the community level, Case explains. The new group seeks to enlist the support of communities and the general public in conserving community, as well as national resources. Case points to the 3 million alumni of the old Civilian Conservation Corps as a potent but unused force in furthering such projects as community beautification.

In addition to Nye, Bell and Case, directors of Citizens for Conservation are John A. Behnke, associate administration secretary of the American Association for the Advancement of Science; Howard A. Meyerhoff, president of the Scientific Manpower Commission; John E. Hartshorn, attorney; and Fred Packard, executive secretary of the National Parks Association.



**FRONT COVER.**—A scene that will soon be a familiar one all over the Corn Belt: listing corn on the contour. This photo by McLean was made on the Albert Miller farm near Waco, Nebr.

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# A Lot of Folks Plant A Lot of Pines

*Here is an example of efficient organization to accomplish a specific conservation aim.*

By A. T. CHALK

**This young lady might well be titled "Miss Pine Tree of 1953." She is Miss Betty Bollman, Jefferson High School student and member of the Camp Fire Girls, active in the tree-planting campaign.**

**T**HERE was a time when Marion and Cass Counties in eastern Texas had a thriving prosperity that was largely based on their forests of valuable pine trees. But, because of the practice of clean cutting then prevalent, the woodlands were wiped out and so was the prosperity.

Attempts were made to grow row crops on some of the denuded land but the sandy soil leached and washed away and the fertility of the land, naturally low, became lower. Crop yields dropped to unprofitable levels, and the effort to farm the land was abandoned. Today much of the land in the two counties is idle, producing neither farm income nor taxes.

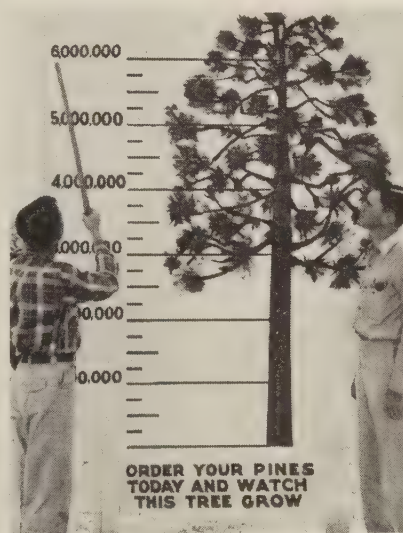
There has been an awakening, however, in the two counties that now comprise the Marion-Cass Soil Conservation District. It is realized that the prosperity of the two counties must depend in the long run on woodlands of marketable pine trees and that the sooner the land is restored the sooner will the prosperous days of old return. That has been known for some years and reforestation has been a goal toward which the supervisors of the Marion-Cass Soil Conservation District and others have been working. Now, however,

they have widespread and unified support of a definite plan to put the idle land to its best use: the production of pine trees.

The goal this planting season (December 1953 and January and February 1954) is to plant 6 million pine seedlings. Whether or not the goal is reached, it will be the greatest planting season in the history of the two counties. By the start of the planting season, 3 million pine seedlings had been ordered. Last year, a record at that time, half a million pine seedlings were planted in the two-county soil conservation district.

The present large accomplishment is merely a good start. Six million seedlings will take care of about 6,000 acres. But in the Marion-Cass Soil Conservation District there are 234,110 acres that ought to be reforested with profitable pine trees. Most of that land, comprising 30 percent of the total area of the two counties, is producing little if anything today.

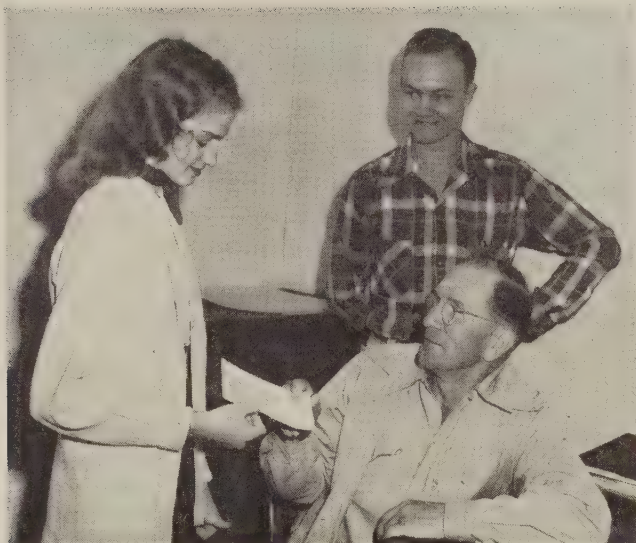
"We're off to a good, solid start," says Russell N. Cash, farmer-banker of Atlanta, one of the communities that stands to benefit substantially. "We realize that 6,000 acres make only a slight dent in the acreage that has to be replanted to pines, but we are well organized now and everyone in a



**County Agent W. A. Messer points to the campaign's goal on the big signboard on the courthouse square. George Marks is equally interested.**

NOTE.—The author is area conservationist, Soil Conservation Service, Mt. Pleasant, Texas.





Miss Peggy Duncan, Jefferson High School student and Camp Fire Girl, takes check from T. G. Brooks for 2,000 pine seedlings which he ordered for planting on his farm near Jefferson. County Agent Messer smiles in approval.

position to help understand and appreciates the problem and wants to do something about it. We've built up a momentum that will carry the project faster toward its goal with each passing year." Cash manages the properties of Paul Pewitt, and his place as chairman of the drive has been taken by Dr. Joe Nichols, doctor-farmer-supervisor.

The tree-planting campaign was sparked by the district's board of supervisors: H. T. Allen, of Atlanta, chairman; C. F. Hall of Hughes Springs, Robert Earl Hasty of Jefferson, Dr. Joe D. Nichols of Atlanta, and A. B. Hall of Jefferson.

The supervisors started off early in the spring of 1953 to organize their campaign by meeting with representatives of various agencies, organizations, institutions, business and industry. Before long every community was well organized to promote interest in the campaign.

More than 70 units have taken active part in the project. These include paper and lumber firms, chambers of commerce, county courts, Texas Forestry Association, public utilities, veterans' classes, individual merchants and professional people, Texas Forest Service, Extension Service, vocational agriculture teachers, the former Production and Marketing Administration, Farm Home Administration, Production Credit Administration, school superintendents, principals and teachers, banks, railroads, manufacturers, Lions' clubs, Rotary clubs, garden clubs, Rural Neighborhood



R. C. Wood, vo-ag teacher at Linden, gives a practical lesson in woodland management to a group of Future Farmers of America. These pines were planted on worn-out cultivated land by Thomas Cloniger 4 years ago when he was an FFA member. For this and other work he was awarded the Lone Star Farmer degree.



These men are working out details for the current season: Carl W. Stripling, SCS forester; Herbert O. Evans, work unit conservationist; Herman K. Byron, educational officer, Texas Forest Service; Ernest O. Kennedy, Cass County judge, and Truitt Powell, county agricultural agent.



Strategy session in Atlanta: Mayor F. P. Ellis, Russell N. Cash, agricultural agent of Atlanta National Bank; Marvin Hagemeier, manager of Atlanta Chamber of Commerce, and Joe M. Graham, bank cashier.





**Mrs. Erbie Carroll teaches woodland conservation to a group of her sixth and seventh grade pupils of Lassater Elementary School. These youngsters were in on the poster contest.**



**Mrs. Joe W. Lovelace, president of Linden Garden Club, inspects a young pine tree in a plantation at the Texas Forest Service headquarters in Linden. All local garden clubs are participating in the drive, and Mrs. Lovelace is their general chairman.**

Improvement Councils, Rural Electrification Administration, Boy Scouts, Camp Fire Girls, auction barns, radio stations, newspapers, magazines, clergymen, city governments, pulpwood producers, Farm Bureau, Parent-Teacher Associations, the Southern Pulpwood Conservation Association, and the Soil Conservation Service.

Each unit was given specific responsibilities, and one person designated for each kind of activity. For example, the 11 garden clubs in the district accepted the task of conducting a poster contest in the schools and Mrs. Joe W. Lovelace, president of



**P. H. Driskell and W. T. Ware, Jr., operate one of the lumber companies that have worked hard on the tree-planting project**

the Linden Garden Club, was named general chairman responsible for the success of the project throughout the two-county soil conservation district.

Herman K. Byron, education officer of the Texas Forest Service in District 1, was appointed to maintain unity among the participants and to supervise the publicity campaign.

Some of the participants donated money for prizes in the poster competition, to buy "incentive" seedlings (1,000 free trees for each 2,000 bought) and for other purposes. Some donated or lent tree-planting machines and other equipment. The county courts agreed to transport the seedlings without cost. Ministers gave sermons on the importance of protecting the land and keeping it productive. Car-bumper signs—"Plant More Trees"—were distributed. Talks were given before school assemblies and other groups. Newspapers, radio stations and magazines helped to publicize the reforestation project.

"It has probably been the most concerted campaign that any soil conservation district has carried on to attain a specific conservation goal within a district," Board Chairman Allen says.

Some firms owning land in the district were so favorably impressed that they made plans to reforest their own holdings. A large paper company bought a tract of land and arranged immediately to plant 150,000 seedlings this season. "We felt that

(Continued on page 178)



# Nash Award Winners

*Verne E. Davison is among ten outstanding professional men honored for service to conservation.*

WINNERS of the first annual \$5,000 Nash Conservation Awards are announced by George W. Mason, president and chairman of the board of the Nash-Kelvinator Corporation, Detroit, Michigan.

Top awards of \$500 were presented January 7 at a dinner in Washington to 10 professional workers for outstanding contributions to the field of conservation of natural resources. In addition, medals were awarded to 10 individuals in recognition of their acts of good citizenship in fostering conservation.

The 20 winners were selected by a committee of writers and editors, from among more than 700 nominations.

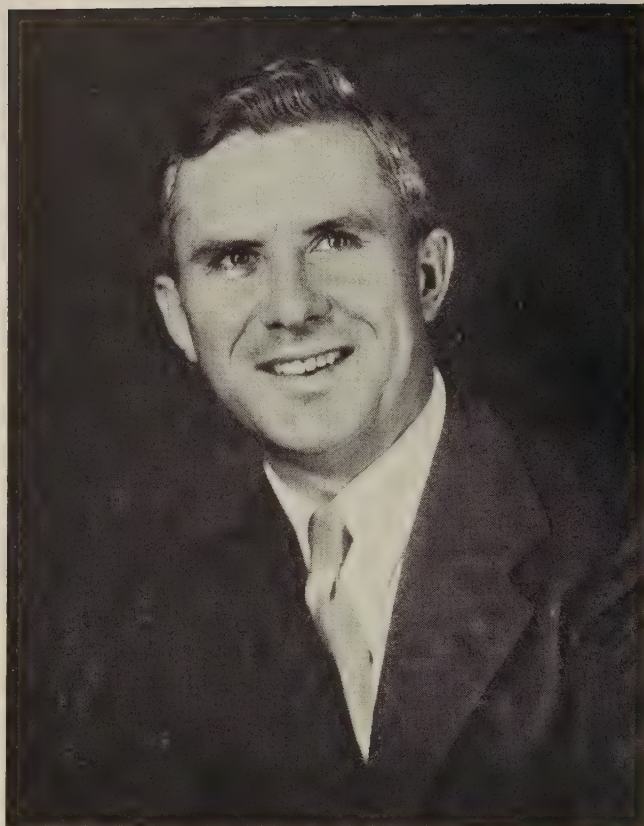
Mason, in a statement explaining the significance of the award, said:

"The automobile industry has a stake in conservation because so much of the enjoyment of the outdoors depends upon the automobile. We hope this program will impress upon the public the wide scope and scientific nature of modern conservation.

"Today's professional conservationists are mostly highly trained technicians, and these awards are going to men whose work has heretofore been little known to the general public. We also want to give recognition to amateur conservationists, without whose help the professional would be greatly handicapped."

Among winners in the professional class was Verne E. Davison, Spartanburg, S. C., a biologist of the Soil Conservation Service.

Davison was selected from among 729 nominees for the Nash award for his expert knowledge of better conservation measures and practices. His work in combining soil and water conservation with modern fish culture in farm and ranch ponds, and in manageable lakes, gained for him an enviable



**Verne E. Davison.**

reputation in the field of conservation. He improved engineering designs, construction methods, public health specifications. His recognition of flood and erosion control, as they affect pond culture, are well known.

Davison has trained more than 800 soil conservationists, and he has received recognition for his prolific writings on the subject of teaching soil conservation. He has cooperated with other agencies in developing farm-game and farm-pond programs, which included the Fish and Wildlife Service, soil conservation districts, state game and fish commissions, and wildlife research units.

In addition, he contributed to the development of lands and waters for specific game species, such as, plants to feed mourning doves; high-yielding food for ducks on wet-lands; widgeon-grass duck ponds; winter grazing plants for deer, wild turkey and geese; and minimum cover plants for each on various soils in cropland, pastures, and woodlands.

Davison is also well known for helping to erase controversies in the southeast between soil conservation practices and insect control.

He has encouraged and aided younger technicians to further their studies in the fields of wildlife re-



search, fish and game management, and soil and water conservation.

In 1952, he added further renown to his career when he served as aquatic biologist, agricultural research, Union of Burma, for the United States special technical and economic mission. He established a pond research station for the scientific and practical guidance of fish culture in all southeastern Asia that is contributing importantly to world knowledge.

Among Davison's writings are: "Homemade Fishponds," 1953; "Bobwhites on the Rise," 1949; USDA Farmers' bulletins and leaflets on fish ponds, field borders, shrubs, and lespedezas for soil and wildlife conservation; and many popular and scientific articles in state conservation publications and sports and farm magazines.

Other winners among professionals were:

Edward Adams of Frankfort, Ky., education director of the Kentucky Department of Fish and Wildlife Resources; Orrie E. Smith, Amaranth, Pa., district game protector for the Pennsylvania Game Commission; Dr. Charles R. Hursh, Asheville, N. C., research forester of the U. S. Forest Service; J. Burton Lauckhart, Seattle, Wash., chief game biologist of the Washington State Game Department; Carl E. Schwob, Chevy Chase, Md., sanitary engineer of the U. S. Public Health Service; Charles A. Rindt, Portland, Oreg., forester with the U. S. Forest Service; Roger M. Latham, Harrisburg, Pa., chief of wildlife research, Pennsylvania Game Commission; Dr. E. Laurence Palmer, Ithaca, N. Y., emeritus professor at Cornell University, and director of conservation education for the National Wildlife Federation; Homer S. Swingle, Auburn, Ala., fish culturist and professor of zoology at Alabama Polytechnic Institute.

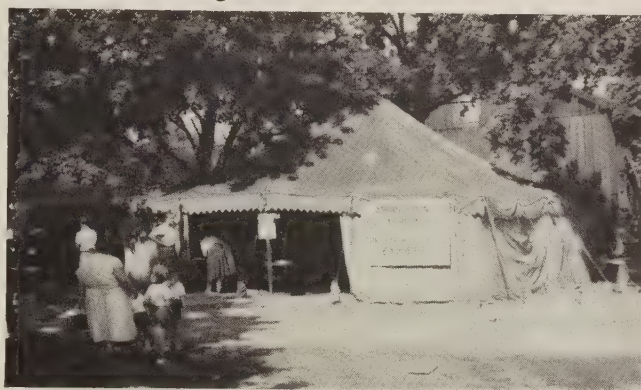
Winners in the amateur class are:

Al D. Sutherland, an attorney in Fond du Lac, Wis.; Mrs. E. E. Byerrum, Warrenville, Ill., for her work as conservation chairman for the General Federation of Women's Clubs; Russell Z. Eller, advertising executive of San Marino, Calif.; Lawrence F. Blaney, high school history instructor of Aliquippa, Pa.; Julian E. Heppler, business man of Ogden, Utah; Frank L. Bentz, 73-year-old retired representative of the Maryland Game and Fish Commission; Mrs. T. M. Francis, housewife of Birmingham, Ala.; Francis H. Kortright, businessman of Toronto, Ont.; Harry E. Rector, Vinton, Iowa, insurance man; and C. D. Johnson, super-

intendent of maintenance of the U. S. Naval Ammunition Depot at McAlester, Okla.

The Committee on Awards consisted of Michael Hudoba, Washington correspondent of *Sports Afield* magazine; Johnny Mock, conservation editor of the *Pittsburgh Press*; Ed Dodd, creator of the "Mark Trail" cartoon strip; Alastair MacBain, chief of the information bureau, U. S. Fish and Wildlife Service; and Pieter W. Fosburgh, editor of the *New York Conservationist*.

## District Goes to County Fair



THE CARBON COUNTY (Pa.) Soil Conservation District, in a novel and effective way, presented their 1953 program to the farmers via the local county fair. Through the cooperation of the fair association, a large tent was obtained and erected on the grounds near the front gate.

All the agencies cooperating with the district were offered space in the tent. Among them were the Pennsylvania Fish Commission, the Pennsylvania Game Commission, the Interstate Commission on the Delaware River Basin, the Pennsylvania Department of Forests and Waters, the Pennsylvania Sanitary Water Board, the Pennsylvania Department of Health, and the Soil Conservation Service.

The Pennsylvania Department of Highways, not having an available exhibit, loaned the district a roll of snow fence on which were hung the pictures and charts displayed by the Soil Conservation Service.

The district tent proved to be as popular with townspeople as with farmers. It was one of the most heavily patronized agricultural exhibits.

—HARVEY R. FRANTZ



# How Conserve Soil, Water and Oil?

*Businessmen of West Texas have a brass-tacks idea for helping strengthen their agricultural economy. This is a how-to-do-it article for the attention of other Chambers-of-Commerce.*

By **PAUL D. MARABLE, JR.**  
Director of Information  
West Texas Chamber of Commerce

OUT in West Texas, where individualism retains the savor derived from the pioneer tradition, the "do-something-for-the-farmer" approach to rural relations by chambers of commerce is some-

what more difficult to find than in some other parts of the Nation.

West Texas farmers and ranchers are appropriately considered businessmen who don't happen to live in a city.

At the same time, the farmers' city cousins know that in this reign of predominantly agricultural



Gainsville meeting: H. G. Millican, supervisor of Upper West Fork Soil Conservation District; Andy Flusche, business man of Pilot Point; J. M. Weinzapfel, president of Muenster State Bank; and O. L. Fowler, Denton Chamber of Commerce.





**Conference at Granbury, sponsored by West Texas Chamber of Commerce: H. L. Sikes and Leslie Hagaman, supervisor of Palo Pinto Soil Conservation District; J. C. Porter, chairman of the chamber's soil conservation committee; and Francis Quinn, of the Mineral Wells Chamber of Commerce.**

economy what's good for the farmer is good for them.

Basis for West Texas prosperity, the West Texas Chamber of Commerce has long maintained, is soil, water and oil. The work of this 132-county, 5,000-member, organization in water and oil conservation dates from its very beginning.

"What can the chamber do to promote soil conservation?" its leaders asked.

A constructive idea developed during conferences between officials of the WTCC, Texas State Soil Conservation Board, Association of Texas Soil Conservation District Supervisors, and the U. S. Soil Conservation Service. Taking part in these conferences for the chamber of commerce were Frank Kelley, president of the organization in 1952; Fred Husbands, executive vice president and general manager; R. M. Fielder, chairman of the agriculture and livestock committee; Loyan Walker,

manager of the agriculture and livestock department; J. C. Porter, chairman of the soil conservation committee; and J. S. Bridwell, prominent rancher and conservationist, and Robert L. Hoyt, railroad official, both members of the agriculture committee.

The best way to promote better soil conservation practices, it was decided, is to support the soil conservation district movement.

"Because a soil conservation district is authorized to use every local resource in accomplishing its conservation goals, it naturally follows that a chamber of commerce representing the business and professional resources of a community has a real place in the district movement," it was pointed out.

As a result, every chamber of commerce in the West Texas region is being briefed thoroughly on what a soil conservation district is and what it



means to the future of each community. With in-town businessmen completely informed, soil conservation has a powerful ally. This will eliminate some of the difficulty which district supervisors experience in trying to explain what a district is and what it does, proponents of the plan believe.

Here's the way the program works: In an area comprised of 8 to 12 soil conservation districts, a conference is arranged in a centrally located town. The program presented is brief, simple, to the point, avoiding technical details of soil and water conservation practices. On the platform is a four-man panel representing the same groups which met to originate the program. The conservation needs of the district are discussed by an SCE survey supervisor; economic and other benefits of a coordinated conservation program are described by a member of the SCS state office; and the philosophy behind soil conservation districts is explained by a member of the state soil conservation board. A district supervisor and a representative of the Association of Texas Soil Conservation District Supervisors tell about the operations and needs of the districts.

After these talks explaining the organization and operation of soil conservation districts and what their work means to the general economy, plenty of time is allowed for discussion and questions. And city businessmen get to meet and talk with, sometimes for the first time, the leaders in their own soil conservation districts.

*In attendance at the 10 area-wide conferences which have been held thus far have been 955 persons from 153 towns, including representatives of 65 banks, 70 local chambers of commerce, and 72 soil conservation districts.*

But the area meeting is just the first step.

Already, more than 50 local (single soil conservation district) meetings have been held, patterned along the same agenda as that of the larger area meetings.

"It's the follow-through that counts," says Soil Conservation Committee Chairman Porter, who usually presides. "We don't have these meetings just to have meetings. The people who attend are what we call 'action' folks and if necessary we'll keep having the meetings until all the action folks in West Texas have attended."

Some of the action?

Several chambers of commerce have assisted in arranging joint tours of farmers and businessmen

so that both can see what a conservation program on the land looks like.

Encouraged by their chambers of commerce, many banks, utility companies, implement and seed dealers, and other businesses are using soil conservation themes in their regular advertising and are inserting stuffers in their monthly statements to customers.

An integrated program of flood prevention and soil conservation in the Brady area was accelerated noticeably when the chamber of commerce took a positive hand in the program.

A record acreage of cover crops in the plains area around Lubbock was planted, with businessmen joining the ranks in the perennial battle against wind erosion.

The Midland Chamber of Commerce has published "After the Rains, What?"—a pamphlet devoted to information about the value of proper range management and the resulting conservation of soil and water.

And don't count out the womenfolk.

Miss Eudora Hawkins, public service officer of a large utility company and chairman of the conservation committee of the Texas Federation of Women's Clubs, attended one of the area meetings. Miss Hawkins is one of the "action group."

She promptly prepared a series of talks on soil and water conservation for presentation at meetings of women's clubs throughout Texas, obtaining a set of colored slides for illustration.

Interest continues high throughout West Texas. Every local chamber of commerce whose representatives have participated in one of the conferences is including in its program of work some practical, active support for the soil conservation effort.

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## A LOT OF PINES

(Continued from page 173)

there would be adequate fire control," a company official explained.

Various groups were assigned a certain number of trees for planting. These included Future Farmers of America, 4-H clubs, Lions' clubs, Rotary clubs, Negro Future Farmers of America, Negro 4-H clubs, Veterans' Vocational Agriculture classes, absentee owners, and the general public.

The Texas Forest Service nursery at Alto supplied the pine seedlings at \$3.25 per thousand.



# Irrigation and Mosquito Control

By WAYNE CRIDDLE

**I**N many irrigated areas of the West, mosquitoes are a menace to the health of humans and cause economic losses because of their effect on animals. Those areas bothered most severely seem to have several conditions in common. Usually the soils are tight, the slopes flat, and generally poor irrigation and drainage practices are used.

Contrary to popular belief, permanent streams and sloughs do not produce all of the mosquitoes. In fact, because of the many natural enemies of mosquitoes that develop in these waterways, such as minnows, few of the mosquito larvae ever develop to the adult stage.

The greatest production of mosquitoes, however, is in those areas flooded intermittently and where water stands for 1 to 3 weeks. According to the entomologists, the adults of certain kinds of mosquitoes lay millions of eggs in the soft mud as the water recedes. These eggs lie dormant as long as a year, if need be. Just as soon as water hits them again, and if the temperature is right, they hatch out and, during the hot part of the summer, within about a week develop into adult mosquitoes that are hungry and ready to go to work on people and animals. If the free water disappears in less time

NOTE.—The author was formerly irrigation engineer in research, Soil Conservation Service, Logan, Utah.



**Ponding water drowns out alfalfa but makes conditions ideal for mosquitoes.**



**Sloughs or drains with permanent water such as this contain many natural enemies of mosquitoes.**

than it takes to develop mosquitoes, we have mosquito control.

Thus, mosquito control plays right into the field of conservation irrigation. During the heat of the summer, alfalfa and many of our better legumes and grasses will be killed in less than 24 hours by ponding water. Only water-loving plants, can withstand extended periods of ponding. Therefore, if a farmer raises good alfalfa on his field, he cannot raise mosquitoes. On the other hand, if he allows ponds to develop which will raise mosquitoes, he cannot produce alfalfa.

In a recent study in the Milk River Valley of Montana, which is one of the worst mosquito areas of the West, the U. S. Public Health Service found that over 85 percent of the mosquito production in the area came as a result of irrigation, with the major production on the fields themselves. Practically all of this production can be eliminated through improved irrigation and drainage practices, and crop yields will increase materially. Thus, improving public health through mosquito control goes hand in hand with the program of the Soil Conservation Service in managing land for maximum profitable production on a sustained basis. This is fully realized by George Pitch, chairman of the board of supervisors, Paradise Soil Conservation District, which includes the Milk River area in the vicinity of Chinook, Mont. He has asked for assistance in improving the irrigation and drainage practices in the district in the hope that the results will be double-barreled.



# Committees Divide the Work

*Here is an object lesson in how to organize and administer the program of an up-and-coming soil conservation district.*

By HERB BODDY







Above.—These are the live-wires behind the successful committee work in the Illinois Valley Soil Conservation District. First row: Ray Frost, Henry Appy, Ray Nickerson, John Valen, Harry Smith, and C. R. Coles. Second row: Walt England, Tex Clifford, Clem Saver, Larry Cushing, Dick Pinkerton, Clyde Broeffle, Dave Renfro, Allen Teagarden, and Don Barnes.

Left.—The district's dragline here is backdrop for three key committeemen: Clyde Broeffle, Walter England, and E. W. "Jiggs" Morris.

**S**UPERVISORS in Oregon today are shouldering a lot of man-sized jobs in running the affairs of soil conservation districts. Ray Nickerson, president of the Oregon State Association of Soil Conservation Districts, gives major credit to good committees.

He says: "Well organized committees are the real work horses of the district movement everywhere. There's too much to be done to leave it all to a mere handful of farmers."

Nickerson himself gets things done in the Illinois Valley Soil Conservation District, in Josephine









**Dick Pinkerton, who edits Illinois Valley News, is on publicity program and education committee.**

mittee arranges for student tours of the soil conservation district, for classroom speakers on good land use subjects, and for keeping people of town and country informed on the activities of the up-and-coming district. Currently, Barnes is conducting a five-county public speaking contest under district sponsorship with the theme, "Democracy at Work in My Soil Conservation District." Last fall the committee had an attractive display at the Illinois County Fair.

Eventually three separate committees—not one, as now—will handle program, publicity and education.

Clyde Broeffle, chairman, Ray Frost, Dave Renfro, and Walt England, experienced hands with farm implements, make up the district equipment committee. England, Master of the Illinois County Grange, operates the dragline.

When the district needed equipment to speed up drainage, irrigation and pond construction, 10 farmers chipped in and raised \$3,500 as down payment on the dragline, while other farmers guaranteed work for the machine.

So far the drag has been used on some 100 jobs, including ponds, irrigation reservoirs, sumps, drain

ditches, and bridge construction projects in cooperation with county and state agencies.

Some of the larger jobs in which the drag was used, include the Illinois Valley Dairy drainage ditch, the Payne-Leesley-White Drainage group facility, the Holland Irrigation Ditch group, and the Faulk Ditch Irrigation Canal jobs. To date the dragline has grossed around \$13,000.

Broeffle's committee and the district supervisors intend to schedule as much equipment business as possible in a community to save the cost of hauling machinery. Emergency jobs get first call, but the general rule is, "First come, first served."

The committee has set up separate funds to cover such items as replacement of worn-out equipment, repairs, and operation of machines, including operator's salary, gas and hauling costs. England and Broeffle make minor equipment repairs free of charge.

Broeffle says that the farmers of Illinois Valley like the present arrangement for handling district-



**Ray Nickerson, chairman, board of supervisors.**



owned equipment. There is a friendly, cooperative understanding with private contractors.

Much depends upon the ambitious tree-farm program now being shaped up under the district's forestry committee composed of Ray Frost, chairman; E. W. (Jiggs) Morris, vice-chairman and manager; Dave Renfro, and Howard Salvage.

The forestry committee's chief purpose is to help owners of farm woodland to manage their timber for sustained yield, so that farmers can cash in on all products of the forest. From its tree-farm program the committee hopes to cut enough timber to pay for construction of a new soil conservation office building and assembly hall, public picnic area and recreational grounds.

School children are being taught woodland conservation and Illinois Valley 4-H Clubbers have started planting Christmas trees on their farms to help pay their way through college.

When there's a "special job" to do Nickerson sets up another committee, as when the district office had to be moved from an ice plant in Cave Junction. On Armistice Day, a quickly formed building committee of some 18 farmers walled in and fitted up an office in the American Legion Hall. Later, when the hall needed a new roof, Nickerson rallied his forces again. "Tex" Clifford was named to head a ways and means committee to help local groups raise funds for the improvement.

But even with standing and special committees hustling the year-around, the soil conservation district board of Ray Nickerson, chairman, C. R. Colee, Ray Frost, Harry Smith and John Valen, still have plenty of work to do. But they have more time for policy-making, for planning and for coordinating.

It all adds up to good land use on a greatly expanded scale in Illinois Valley.

# *He Believes in Kids and Conservation*

By C. E. DAVIS

Sutton Sharp.





**H**E has never plowed an acre or stacked a ton of hay but he has a lively interest in soil conservation.

His business is "news": the interesting and different things—sometimes brave and fine, sometimes sad, sometimes weak and foolish—that people do.

His name is Sutton Sharp.

Since 1940 Sharp has been managing editor of the *Times*, a daily paper of Fairmont, W. Va., whose staff he joined in 1922.

The *Times* has made a practice of using a weekly conservation column, plus numerous articles and editorials, on conservation. This, he explains, is, "because conservation is news. People are interested in it. It is also good business."

Typical is the last paragraph of an editorial on "Forests and Their Products," printed October 31, 1951: "There is magic in wood—magic that makes life richer and more comfortable. That's why it is so important that every American do his share to protect the forests and keep them producing perpetually."

The first few paragraphs of another editorial headed "Drought Insurance," printed on August 7, 1952, ran:

"Drought insurance is something that many a farmer right now wishes he could have. There is

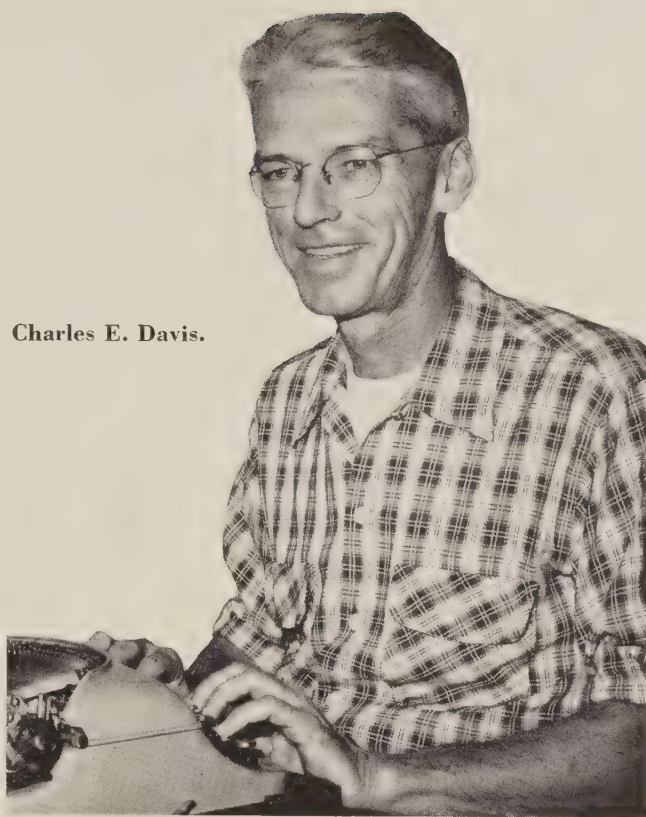
**EDITOR'S NOTE.**—The writer of this article knows whereof he speaks. Every Tuesday the *Fairmont Times* carries a column "Better Living from the Land," contributed by Davis. These columns have acquired a wide popularity because they are timely and written with quiet charm. It really is unfair to do a surgical job on a column which deserves to carry its complete message but I know our readers will enjoy a short "sampler" removed from a column that is fairly typical:

Do you have a food freezer? The thought of packages of golden corn, green snap beans and the melting blandness of limas stored in that miracle box can be a real pleasure when you are preparing the garden for winter.

This year there is no green of ryegrass to draw a fresh mantle over the earth because there is no moisture to sprout the seed. The frosted corn stalks are uprooted and dropped to join the surface mulch already there and slowly blend their strength with the good earth to give us new crops. Not much protection from winter storms pounding on plowed ground but better than nothing.

The hot sun feels good on your back and a flow of perspiration brings a pleasant sense of well being. A trip

**Charles E. Davis.**



no such thing but there is something close to it in proper land management.

"The drought that comes when it isn't expected

to the spring for a drink places you close to the base of the pine thicket. A tiny breeze carries the scent of sun-warmed resin and the faint lilt of bird song. The pines are the only green in a scorched landscape.

As you cut the ties of spent tomato vines and pile the stakes, it is fun to find and sample the taste of a late fruit, overlooked by frost. Perhaps some might think it pagan to get such deep enjoyment out of simple things but the Master put them here and He surely understands.

Fresh tarred roofs of the chicken houses glisten in the sun and from within come the clamorous voices of pullets announcing their day's task completed. Others, idle, squabble with their neighbors over the best spot at the feeders.

A dozen leaves drift gently from the maples on the lawn to remind that there are several stacks of them still not carried to the garden. You get the leaf broom and the sheet made of feed sacks. With the sheet spread on the ground it is easy to whisk an enormous pile of dry leaves onto it. It looks impossible to contain them in the sheet but a bit of trampling packs them to where the corners will tie into a great sack. As you heave the sack on your shoulder, you remember the pictures of the little Mexican donkeys with such enormous loads that only feet and ears show. You wonder if you look like that as you carry the load to empty into the wire pen in the garden.



and lasts longer than anyone can predict is a dramatic thing in a creeping, paralyzing fashion. Things go from bad to worse and then there is actual famine for livestock and destruction of property for the owners. It's a terrible thing. Fortunately the federal government can and will help but such help can do no more than help the farm owner weather the emergency—give him time to catch his breath and plan to regain his losses with another crop in another season.

"Less dramatic is proper land management which is geared almost entirely to conservation of water resources. Make more and more of the water soak into the ground and you prevent costly soil erosion. Plant forest where forest should be. Impound water in farm ponds—and raise fish in them too. Plow on the contours in order to hold the water that falls on sloping land.

"There are many, many things that can and should be done in a complete program of land management and it all aims at conservation of water and topsoil."

Sharp doesn't say, but perhaps his interest in soil and water conservation stems partly from his interest in young people.

Over his desk hangs a framed "Certificate of Recognition" from Antioch College for his paper's help in their study-plus-work plan. The *Times* Christmas fund, a Fairmont tradition, is widely known up and down the Monongahela Valley.

In one of his daily columns, "Times Notes," he asked people to support the building of a small lake for public fishing because "youngsters haven't had this opportunity around here for many years. Drainage from the mines poisoned the waters of our creeks and rivers and destroyed the fish life. There just wasn't any place for a kid to go fishing. And maybe we had a lot of juvenile delinquents who would not have been that way if they could have gone fishing."

Sharp recently accepted the editor's post of the Parkersburg (W. Va.) *Sentinel* and has moved from Fairmont. Wherever he goes, you can be sure the cause of conservation will be strengthened in the public mind.

# Five College Professors and Their Summer Jobs

By T. S. BUIE

**E**MPLOYMENT of five college professors by the Soil Conservation Service last summer gave every indication that this type of program has far-reaching possibilities for better understanding and appreciation of the Service's work for better training of future Service technicians by the State Colleges.

This is reflected in reports of the college professors at the end of their period of employment.

Dr. J. H. Neal, professor of agricultural engineering, Alabama Polytechnic Institute, Auburn, pointed out that he obtained a much broader concept of the problems encountered in the different areas of the State. "A number of these problems

will be incorporated into the conservation courses taught to students as a result of this experience," he commented.

"There are several phases of teaching which should receive more emphasis," he explained. "For example, (1) more training in sprinkler irrigation design, (2) selection of type of water-disposal areas, (3) drainage patterns for bottom pastures, (4) parallel terraces, and (5) strip farming."

Rush E. Choate, assistant professor, Department of Agricultural Engineering, University of Florida, Gainesville, expressed the opinion that the most outstanding value to be derived from the program is intangible in nature and is not measured quantitatively.

NOTE.—The author is state conservationist, Soil Conservation Service, Spartanburg, S. C.



"The fact that college personnel, such as myself, are given the opportunity to obtain directly through actual field experience a better understanding of the need for, and the responsibilities and duties of the Soil Conservation Service, in itself leads to greater appreciation of the problems" he said.

"The Soil Conservation Service and the colleges have a mutual goal, which is to further agriculture. The consummation of this goal is greatly simplified through cooperation between the two agencies, as well as through the agencies working individually, each in its own appropriate manner."

Professor Choate took part in all phases of the program, including soil mapping, farm planning, and day-to-day work with farm planners and engineers.

"He was impressed from the start with the information that is made available through the conservation survey and its resulting land capability maps," says Henry T. Stanley, area conservationist. "He had taken courses on the side even while teaching and had not been able to get anything more than a group of soil names from them.

"It was immediately apparent to him that the curriculum of agricultural engineers at the University of Florida was not preparing students for work with the Service in that classification. The lack of surveying and hydraulics courses was most evident in the work that our engineers must perform. He stated that he was going to renew his efforts to improve the curriculum in his department."

Professor Choate was anxious to get color slides of problems, projects under construction, structures, and end results. Stanley was able to provide Professor Choate with 100 such slides, which he intends to use as visual aids in his courses. Stanley also provided him with plans or layouts of several water-control jobs to be used as examples of work in the field.

A. W. Snell, assistant professor of agricultural engineering at Clemson College, Clemson, S. C., pointed out that in teaching college students, personal contact is made with a majority of the future agricultural leaders of the State.

"It would be impossible," he said, "to take full advantage of the opportunity of explaining the work of the Soil Conservation Service through contacts with college students without experience of working with the Service.

"In order to train these men adequately, a thorough knowledge of the principles of soil conservation and its related sciences, the ability to impart knowledge, and the organization of material with emphasis on the most important needs are necessary," he added. "Having confidence in the workability of the methods used in the field work is a valuable asset."

Michael S. Kipps, assistant professor of agronomy at Virginia Polytechnic Institute, Blacksburg, Va., indicated unusual interest in the thorough and detailed way in which the Service worked with farmers in solving their problems. He was impressed, too, "By the genuine regard in which they were held by their fellow men—farmers, technical workers in other fields, and business men of their areas."

Said Professor Kipps: "I had been only partially acquainted with the program of the Soil Conservation Service. Now I feel that I have a speaking knowledge and, to a moderate degree, a working knowledge of their problems and solutions.

"I will be in a much better position to combine conservation practices with the technical phases of the subject I endeavor to teach. Knowing that many of my students are employed by the Soil Conservation Service, and believing that others will follow in their footsteps, I should be in a better position to relate the subject matter in my courses to conservation practices."

Dr. J. D. Pendleton, associate agronomist, Virginia Polytechnic Institute, Blacksburg, Va., as well as several others in this program, offered a number of suggestions. Two of Dr. Pendleton's suggestions dealt with procedures at land capability schools held in a number of areas during the summer.

As a more accurate method of determining the textural class of a soil, Dr. Pendleton suggested that the hydrometer method, and in some cases the pipette method, should be used to determine the class before the meeting. He pointed out that at land appreciation schools he attended, some participants did not agree with the textural class given.

A second suggestion about the land appreciation meetings was that the recommended use of land should be decided strictly on the basis of SCS land capability principles. "At one meeting I attended," he commented, "I saw and heard mutterings of disagreement at the rather intensive use suggested by leaders of the school for a rather steep piece of land."



Dr. Pendleton also suggested that in the search for new and more desirable crops which are better adapted to a particular purpose, that consideration should be given to the growth habits, requirements, and other characteristics of some of the older crops.

"It is obvious that we may need to go back to some of these that are being discarded," he said. "Some of these will be used by farmers for a long time."

Dr. Neal, of Alabama Polytechnic Institute, expressed the opinion that some of the engineers make too detailed plans on projects that the farmer has not committed himself to do. This is especially the case with irrigation projects, he said.

"Frequently, when the farmer sees the magnitude of the job, he gives it up," Dr. Neal explained. "A preliminary plan may help the farmer to decide

whether he will do the job or not. Unfortunately, the handbooks are not well suited to making quick preliminary estimates.

"All recommendations to the farmer should be made in writing, and a carbon copy kept in the files," he continued. "Oral instructions are frequently misunderstood. Occasionally a farmer will proceed with a project that the Soil Conservation Service workers advised against. If there is no record, the farmer may blame the Service for a failure."

Dr. Neal made the additional suggestion that if the Service plans to employ college teachers next summer, the arrangements should be made as early in the calendar year as possible so that plans for summer teaching or research will not be made.

# Quick Results from Sound Land Use

*Masonic Home farm rids itself of excess water  
and stops going broke.*

By HUGH EAMES

GOOD farmland in Oneida County, N. Y., that had been operated at a loss for a long time because it was water-soaked and couldn't be worked, now has become a productive 250-acre cropland enterprise. *For the last 7 years, it has turned a profit that averages about \$10,000.*

This quick switch from red to black at the Masonic Home's 350-acre farm near Utica began with a \$20,000 expenditure for a drainage system, and with a good land use program developed by Farm Manager Luke Bell in cooperation with Oneida County Soil Conservation District. Increased production during the first 2 years after the work was started paid for the whole job.

Involved in this project is the reclamation of nearly 250 acres of cropland by 100,000 feet of tile

drainage ditches, 5,000 feet of diversion ditches, and 5,000 feet of safe outlets. Most of the water drained off the land now goes to a creek in a wooded area. The problem of excess water has been completely licked just about everywhere on the farm.

The farm formerly lost money because of high operating costs and because the land was not producing the food needed by the Home or the feed necessary to support its livestock. When Luke Bell took over, none of the land was easy to work and none of it could be cultivated safely with ordinary good farming practices. All of it needed drainage. A lot of it, even with careful management, was good only for growing grass and trees. The land needed practices that ranged from those easy to apply to others that involved intense treatment.





**These three men led way in pulling Masonic Home farm out of water and into profitable production of food and feed: Dr. William T. Clark, superintendent; Luke Bell, farm manager; Stanley S. Greene, SCS technician.**

On this kind of land, in 1952, production was running 178 bushels of corn per acre, 78 bushels of wheat, and 40 bushels of oats. From one 20-acre tract, which had been an old bog, 50 trees were dragged out and 1,500 feet of surface ditches were dug. Now it is top-flight pasture for the 70 head of Ayrshires—a herd that includes 40 milkers. So far in the 1953-54 fiscal year (March through February) herd production is running as good or better than last year, when 233,313 quarts of milk and 3,264 pounds of butter were produced for use of the Home.

The transition in 7 years means that a farm that was producing only \$21,000 worth of food and feed in 1945-46 at a loss of more than \$2,500, produced \$80,000 worth of food and feed in 1951-52, at a

profit of more than \$11,500. In 1952-53 production and profit were slightly higher.

Production in 1951-52 included 78 acres of hay and 75 of pasture; roughage such as alfalfa, timothy and ladino, brome and ladino, and some birdsfoot trefoil. There were 50 acres (4,000 bushels) of small grain and 278 bushels of ear corn. In addition to mowing 167 tons of baled hay, Farm Manager Bell packed 538 tons of grass and corn into 3 silos, and harvested 20 tons of straw.

That was not a particularly exceptional year. The next year Bell harvested 520 tons of corn and grass silage, 307 tons of hay, 35 tons of straw and 3,642 bushels of oats, wheat and barley, all worth \$14,695. The Home's livestock—cattle, pigs, horses and chickens—are valued at more than \$59,000.



# Criss-Crossing Creeks Put Under Control

By ROBERT NELSON

CONSTRUCTION of a new flume, or underpass, for the Burt-Washington drain near Tekamah, Neb., was the most unusual rehabilitation job in which the Soil Conservation Service engaged following the Missouri River flood of 1952.

This project necessitated building a new structure where the drain passes beneath the Tekamah Creek floodway, an artificial aqueduct-type channel carrying the water of two live streams that flow from the hills bordering the valley to the river.

The project was made possible by the special flood rehabilitation money voted by Congress. It was finished in March of 1953, in time to handle the spring flood flows. This included reconstruction of the floodway over the flume.

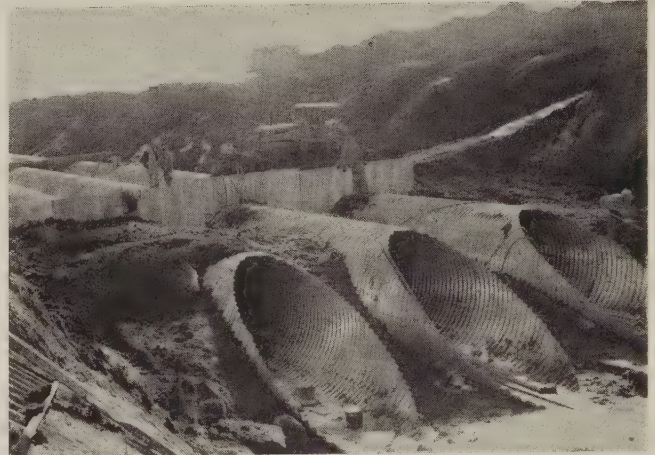
Actually, the work was highly cooperative. The drainage district did the earth work. The Service designed the structure and contracted for materials and installation. A construction company of Blair, Nebr., was low bidder.

This over-under device for handling drainage water and creek flow goes back 40 years. It was made necessary by the characteristics of the Missouri River bottom land.

Because of flood deposits throughout the ages, the land is several feet higher than land closer to the hills. Consequently, streams which flow from the hills became meandering water courses traveling generally southeast until they entered the river. Their channels were too small to handle runoff from heavy rains in the hills. They flooded often, and built up the level of the land close to them.

Floodwater, trapped by the higher land along the river and creeks, could not escape. It stood on the land until it evaporated or soaked slowly into the ground. Since flooding occurred often, damages to crops and property were costly.

Flooding by Tekamah and Silver Creeks, the largest streams in the area, and the principal bad actors, was ended by construction of floodways.



Close-up of tubes shows how ends are made to conform with side slope of embankment for floodway above. One of the metal collars also is seen.

These elevated channels carry the creeks across the lower land. The Tekamah and Silver Creek floodways join just west of the drainage underpass. Thence, the water goes almost straight east to the river.

The drain, which serves 24,680 acres, was built to clear the lowland of excess water which was trapped by the elevated floodway. To collect the trapped water and carry it to the river, the ditch had to pass underneath the floodway.

The original underpass was a reinforced concrete, triple 8' x 8' box-type culvert. An eddy formed at the outlet end of the structure during the Missouri flood and undermined it. With the support removed, the weight of the concrete and the embankment above it caused the culvert to break.

Examination revealed that construction of a new underpass at a location slightly east of the old would be cheaper in the long run than repairing the old structure. It also would enable the drainage district to eliminate sharp bends in the drain above and below the flume.

The new underpass is of three corrugated metal pipes 8½ feet in diameter and 301 feet long. They are 4 feet apart, and their ends rest on concrete

NOTE.—The author is an agricultural engineer, Soil Conservation Service, Blair, Nebr.



slabs 12 inches thick, 35 feet long and 15 feet wide. A concrete collar was built at the center, and metal collars were placed near the ends to prevent seepage. There is a drop of 1 foot between the inlet and outlet ends.

Sheet piling was driven into the ground at each end to prevent undermining. The ends of the pipes were fabricated to conform to the slope of the embankment. Side slopes and face of the inlet were riprapped with bags filled with a sand-cement mixture. Reinforced concrete wings were built at the outlet end, and the face of the outlet riprapped with the sand-cement-filled bags.

Winter was chosen for construction, because of the probable freedom from flood flows. Preliminary jobs included building a temporary dam in Silver creek with a spillway leading to Tekemah creek, a temporary dam in Tekemah creek with a spillway leading to a lateral drain south of the floodway, and changes in parts of the channels of two lateral ditches, one above and one below the flume.

The drainage district began its first work in November 1952, and finished making the huge trench through the floodway embankment the day before Christmas. The trench was about 21 feet deep, 330 feet long, 45 feet wide at the bottom, and with 2-to-1 side slopes. A berm was built at the inlet end for protection against possible flood flows.

Construction of the flume began soon afterward and was finished last March. Working conditions were not the best during the winter, but the concrete was protected and kept warm during the curing period by the use of tents and heaters.

After the pipes were placed, back-filling of the trench was begun. Earth of the proper moisture content was brought in by tractors equipped with bulldozer blades, and was spread between the pipes by a dragline machine with a "clamshell" bucket.

Only 6-inch layers of earth were spread at a time, and each layer was packed with air-driven tamps. Care was taken to remove frost from the top of the fill each morning, and to see that no frost chunks were brought in with the fill material. This was a precaution to prevent holes developing when the frost thawed.

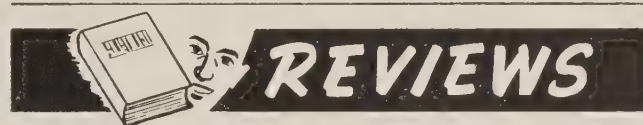
With the pipe laid and firmly embedded in packed earth, the drainage district undertook earth work again. This included restoring the floodway over the underpass, diverting the drain into the new structure, and removing the temporary dams from

Tekemah and Silver Creeks. The drainage district still has to clean out 2 miles of ditch below the flume.

A total of \$63,935.20 of federal rehabilitation funds was used. This, together with the work done by the drainage district, brings the estimated cost to about \$100,000.

Had this rehabilitation job not been done, thousands of acres of fertile bottom land would be subject to frequent flooding by overflow from the smaller creeks and water from heavy rains. The annual loss would run high.

Tekemah and Silver Creeks were not affected, however, since the floodway had not been damaged.



### **SOILS AND FERTILIZERS, FOURTH EDITION.**

Firman E. Bear, 420 pp. Illus., 1953. New York: John Wiley & Sons, Inc., 440-4th Ave., New York 16. \$6.

Perhaps no subject is more important to an improvement in world food supply and to efficiency in farming than the expanded and proper use of fertilizer. In primitive societies people can use only the soils that have within themselves the dynamic to remain productive. These make up a very small percentage of the total. During the past 150 years, with the rise of modern technology, civilized man has learned how to overcome plant nutrient deficiencies in the soil; and he has developed an industry to supply the materials. This development alone has brought into use, or potential use, at high levels of efficient sustained production, an enormous area of soils. Much of this potential has been at least partially realized in temperate areas of high culture, but only to a limited extent in large parts of the world.

Dr. Bear has given us a very useful general survey of the basic principles involved in the complex relationships among soils, fertilizers, and plants; principles that are basic to a more efficient, more productive, and more permanent agriculture. He writes with a long and rich background of experience as a college professor of soils, with the fertilizer industry, and as the distinguished editor of *Soil Science*.

In roughly the first half of the book, he discusses



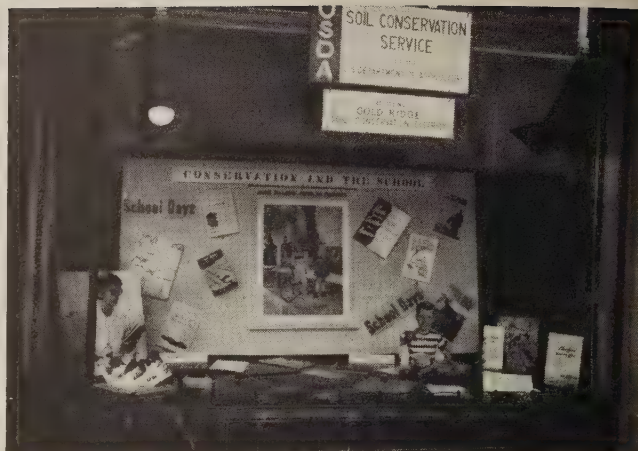
the most important characteristics of soil, the water and nutrient requirements of plants, and the basic principles of the other soil management practices that must be carried out effectively if fertilizers are to have their full effect. This group of chapters is concluded by general ones on soil conservation and animal agriculture.

Then Dr. Bear summarizes a large amount of information about the supplies, forms, uses, and needs for the important plant nutrients under chapters on nitrogen, phosphorus, potassium, calcium, magnesium, sodium, sulphur, trace elements, and mixed fertilizers. These chapters are followed by a brief one on the selection and use of fertilizers and another on the "Yield Potentials of Crop Plants." Many of Dr. Bear's colleagues may be a bit astonished that he gives so much space in this general survey book to what is sometimes called "agrobiology."

Authors of such survey-type books are faced with very serious problems of selection, and likely no two would answer them similarly. This reviewer, for example, would have taken space to review the progress in fertilizer research and development at Muscle Shoals and the great contributions of the cooperative research and farm demonstration program sponsored by the Tennessee Valley Authority and carried out with the State land grant colleges. Also, in order to follow through on the theme of world food production introduced at the very start of the book, one misses a discussion of the highly significant efforts of the Food and Agriculture Organization of the United Nations to push forward the use of fertilizers, especially the world-wide booklet on, "Efficient Use of Fertilizer." Even more surprising, considering the emphasis given to nutrient deficiency symptoms, is the omission of reference to the classic work in this field, Prof. J. Wallace's, "The Diagnosis of Mineral Deficiencies in Plants." (Second edition, 1951). But the omission of these very important items perhaps only emphasizes the vast significance and breadth of the subject.

The text is well written and relatively free of technical terms. It will be useful as an elementary college reader in soils and fertilizers and especially useful to those agriculturists wanting a sound summary of information about fertilizer use with the minimum of technical discussion of chemistry and soil science.

—CHARLES E. KELLOGG




**TIMELY DISPLAY.**—The Sebastopol, Calif., headquarters of the Soil Conservation Service attracted wide interest last Fall with its community show window of school material. Jean M. Rumley, office secretary, who arranged the display, got a lot of help from such "Main Street" folks as a grocer, a men's shop, a variety store and the police department.



**COLD-WEATHER CONSERVATION.**—An unseasonable 4-inch blanket of snow held no terrors for the hardy crew of tree planters seen above. The work was supervised by the Allegany County, N. Y., Soil Conservation District. Plantation of Scotch and Austrian pine seedlings on a farm at West Almond went ahead in spite of a late 1953 storm. Foresters claimed the increased moisture would favor the young trees. Sticking to a well-organized schedule each spring, Allegany County has reforested 20,000 acres in the past 12 years and established national records in improved soil and water conservation, flood control, recreation and Christmas tree production.





*April 1954*

# Soil Conservation

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# SOIL CONSERVATION •

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SECRETARY OF AGRICULTURE

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**WELLINGTON BRINK**  
Editor

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**MINNESOTA'S 1953 AIR TOURS.**—The "Soil Conservation Air Tour" was again used in Minnesota last year, as a medium of public education. Between May and October, 13 such events were held with 17 districts participating. A total of 1,568 passengers were carried over routes selected in advance by Soil Conservation Service personnel and county agents. At two of these tours the passengers were flown free of charge, by members of the Minnesota Flying Farmers Association. At the others flight was by commercial operators and charges were \$3 to \$3.50 per person.

Some Minnesota soil conservation districts have conducted these tours for 3 years, and in most cases they will become an annual event. Observers taking the tour on consecutive years are impressed by the growth of the soil conservation program.

Most of the credit for the success of these educational trips should go to supervisors of districts involved. Also, a great deal of work has been done by county agents and farm planners, in selecting routes and in "briefing" participants.

The Minnesota Soil Conservation Committee, the Minnesota Flying Farmers Association, airport operators, and the Minnesota Department of Aeronautics cooperated in conducting the events.

—RAY BROWN



**FRONT COVER.**—Spring comes to the famous Palomar Angus Ranch in Pauma Valley, near Valley Center, Calif. When this picture was made in 1952 there were more than 500 acres of modern sprinkler- and surface-irrigated pastures in this ranch. Replacing foxtail and other poor growths under a conservation plan are alfalfa, orchardgrass, birdsfoot trefoil, tall fescue, and ryegrass. Photo by Wellington Brink.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.



# Flooded Farms Back in Business



Farmsteads flooded by the Missouri River near Council Bluffs, Spring of '52.

By W. H. LATHROP

*Large acreage of Iowa's good cornland is returned to production on schedule and at a third of the anticipated cost.*

THE last vestige of 1952 flood damage to the extensive drainage systems of West Iowa farm-lands had been erased by the opening of 1954 through an emergency program authorized by Congress. In less than 18 months the Soil Conservation Service had repaired all damage to 208 miles of drainage systems stretching two-thirds of the way across Iowa. And the job was done for a third of the original estimates.

When waters of the record April 1952 flood receded, despairing farmers found thousands of acres of their best corn and small grainland buried under a load of sand and silt up to 6 feet in depth. An

area of 212,000 acres, some of Iowa's best cornland, was unfit for cultivation.

Under the leadership of Congressman Ben Jensen, Congress rushed through an emergency appropriation to reclaim flood-damaged land in Iowa and Missouri. The Soil Conservation Service was assigned the job of channel restoration, also technical responsibility for all land reclamation for which farmers received part payment from the Agriculture Conservation Program.

The work in Iowa started August 11, 1952, and was completed December 31, 1953, the scheduled completion date. In the 18-month period drainage had been re-established on 1,063 farms, and in addition 208 miles of ditching and 26 miles of levees had been repaired. Under the ACP program 6,527 acres of land had been reclaimed by deep-plowing and 8,600 acres of scoured land had been leveled.





**Good Iowa cornland like this is worth reclaiming.**

Clyde Spry, Iowa Secretary of Agriculture, credits soil conservation districts for prompt completion and low cost of this reclamation project. District commissioners in the flood area helped obtain the cooperation of farmers, drainage board trustees, county boards of supervisors, and others.

Preliminary estimates had set the cost of the emergency program in Iowa at \$3,000,000. Instead the total cost came to \$916,341, and of that amount farmers and local interests footed the bill for \$153,774. Of the funds actually allocated for work in Iowa, \$169,700 was turned back to the Treasury.

Best of all, more than a thousand Iowa farmers who were nearly wiped out by the flood, are back in business producing food for the Nation.



**How silted land looks after drying.**



# "Science" of Snow Taught in West



There's no substitute for skis in many situations.

*"School" provides instruction on "crop" that can mean wealth or disaster. Skis still are basic in this atom age.*

By LAWRENCE E. DAVIES

Reprinted from *The New York Times* by special permission

**S**HOD with snowshoes and skis, key members of a battalion that estimates the worth of the arid West's most valuable "crop," in January completed a 5-day "graduate school" course at McCall, Idaho, in the Payette National Forest.

The "crop" is the winter's snow pack. It is a crop that, if of ample yield and if the "harvest" goes off well, means untold millions of dollars annually to irrigation farmers, stockmen, power and water-using industries and municipalities. It can be the backbone of the regional economy.

A bumper "crop" may mean disastrous floods, and a deficient one may bring drought, power shortages, idle industries and regional brownouts.

These contrasting possibilities—a prosperous year or a discouraging one—stem from the fact that an estimated average of 80 percent of the flow of Western rivers from April through September comes from melting snows in the mountains.

Federal agencies and private power companies want to empty storage reservoirs if floods threaten during that period. Irrigation districts want to be sure of full reservoirs when their growing season begins. Bankers want to know the water prospects before making loans to farmers.

It is worth millions, therefore, to know how much snow lies in the mountains.

Seventy-five men, instructors and students, who are charged with measuring the snow pack or helping with water forecasts, attended the School,

sponsored by the Soil Conservation Service of the Federal Department of Agriculture.

Newer men in the Service learned how to organize snow surveys, deal with avalanches, dig or fashion shelters if injured or lost on survey trips and take their boots and socks to bed with them to ensure dry feet the next day.

They headed for their homes convinced that the time had not yet come for them to throw away their skis and snowshoes. That equipment remains standard, despite increasing use of the airplane and the other motor vehicles that chug over the snow, and despite experimentation with costly gadgets that measure the snow pack with the aid of radioactive isotopes and Geiger counters and radio the results automatically from remote stations.

Nevertheless, the trend in snow survey work is "toward fewer and better-trained men traveling faster and farther in dependable machines, on the snow or in the air," according to R. Arch Work of Portland, Oreg. He is the soil conservation official heading the cooperative snow survey work of the entire Western United States, in which Government agencies, state and private industries take part.

Work said almost 900 surveyors participated in the measurement last year. They measured 1,180 snow courses—strategic areas usually selected near the headwaters of streams—and in so doing traveled some 28,000 miles on foot over some of the most rugged terrain in the West.

They covered 9,000 miles on machines, which traverse snowfields much faster, as a rule, than skiers but which cannot surmount all the obstacles that a surveyor afoot can overcome. They also flew an estimated 3,000 miles.



"In 6 years ending in 1952-1953," Work reported, "without an appreciable increase in financing, 6 percent fewer men accomplished 28 percent more work without increasing foot travel in the mountains. Oversnow machine travel increased more than 300 percent. We have not had a fatal accident in snow surveyors' ranks in the last half million miles.

Whether on foot or riding various types of snow vehicles, which were demonstrated here and which every person at the school was taught to operate, surveyors followed the same measuring procedure, according to W. T. (Jack) Frost, Oregon snow survey leader.

They first found the steel marker of the snow course. Then they plunged a snow sampler—a hollow tube—to the full depth of the pack and weighed the tube with its core of snow.

The tube had first been weighed without snow. The difference represented the weight of the snow. Its density, or water content, was computed. Determining this water content is a basic objective of the survey, since the density varies widely with seasons and with areas.

Morlan W. Nelson, snow survey leader from Idaho and the Columbia Basin and program chairman for the training school, said that sometimes 100 inches of snow would produce only 50 inches of water. Sometimes 75 inches of snow would yield water 60 inches deep.

Mr. Nelson cautioned that to ensure the greatest

accuracy of forecast the amount of moisture in the soil beneath the snow also had to be determined. Here in the Columbia Basin the measurement data are assembled in his office and the forecasts are a joint responsibility of the Soil Conservation Service and the Weather Bureau.

Their findings, he asserted, could "spot a catastrophic flood by April 1 and pinpoint it by May 1."

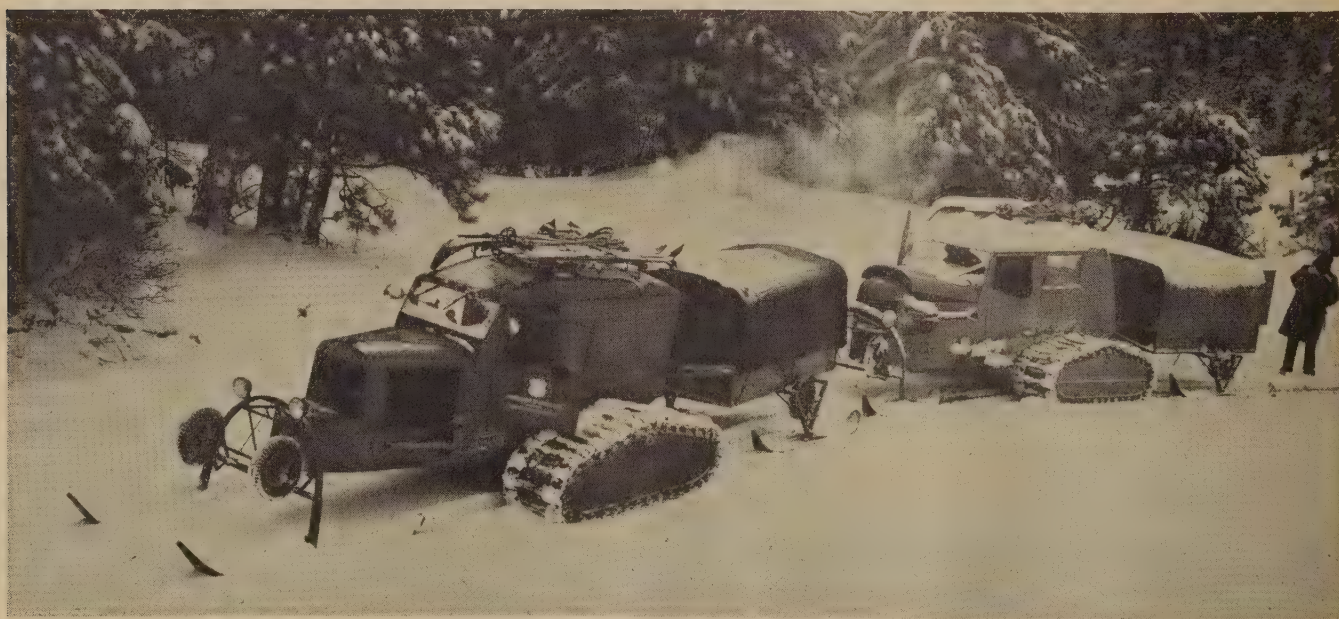
He said that in 1948, the year of the last major flood on the lower Columbia River, there had been no evaluation of the soil moisture status. There had been heavy rains, however, leaving the ground saturated so that, he added, virtually all of the melting snows ran into the rivers instead of being absorbed in part by the soil.

To measure soil moisture deficiency electrical equipment developed by the California Forest and Rain Experiment Station has been undergoing test for more than a year by Homer J. Stockwell, snow survey leader for Colorado and the Colorado Basin. Stockwell suggested it cost about \$250 for each unit and its installation.

However, a radio-isotope snow gauge, including a radio transmitter, now being tried by the Corps of Engineers at Pine Flat Reservoir on the King's River of Central California, costs about \$15,000 for equipment and installation.

David Rockwood of the Army Engineers North Pacific Division Office in Portland said the snow gauge, developed cooperatively by the Corps and

(Continued on page 201)



Machines help speed the measurement of snow.



# Farm and Home

## Register Awards



Happy occasion: Standing—Glenn Hindman, Virgil Dozark, Governor William S. Beardsley, Farley Henkes. Seated—Mrs. Glenn Hindman, Rachael Hall, Mrs. Virgil Dozark, and Mrs. Farley Henkes.

By FRANK H. MENDELL

THE first year for the Iowa Soil Conservation Achievement Awards Program, sponsored by the *Iowa Farm and Home Register*, was climaxed at a luncheon in Des Moines in November. Co-sponsors were Iowa Association of Soil Conservation District Commissioners, Iowa State Soil Conservation Committee, Iowa State College Extension Service, State Department of Agriculture, U. S. Soil Conservation Service, and Iowa Chapter of the Soil Conservation Society of America.

NOTE.—The author is state conservationist, Soil Conservation Service, Des Moines, Iowa.

The 27 area winners and their wives, together with representatives of the cooperating agencies and of press and radio, were guests of the *Register*.

Governor William S. Beardsley delivered a congratulatory address.

The contest was divided into three divisions: one for owner-operators who had the most outstanding conservation programs, another for owner-tenant operated farms, and a third for soil conservation district cooperators who made the most progress in the 2 preceding years. This was limited to farmers who became cooperators after January 1, 1951.



The 936 soil conservation district cooperators who entered this program came from 78 soil conservation districts.

J. S. Russell, editor of the *Farm and Home Register*, stated that the purpose of the awards was "A program to foster the establishment of needed soil conservation practices and proper land use."

The winner in Division 1 was Farley Henkes, Clayton County Soil Conservation District. Winning in Division 2 were Rachael Hall, owner, and Virgil Dozark, tenant, Crawford County Soil Conservation District. In Division 3 the laurels went to Glenn Hindman, Audubon County Soil Conservation District.

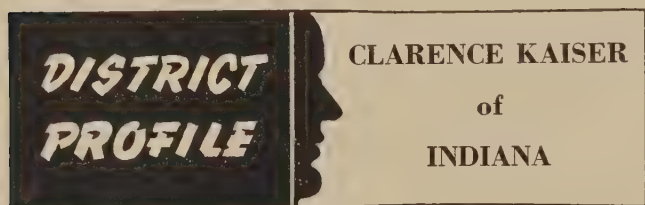
Each of the 27 area winners was given a certificate and a fountain pen with name engraved. The ladies were given perfume.

Each of the top winners—Henkes, Hall-Dozark

and Hindman—received a wrist watch. A \$500 Savings Bond went to Mr. and Mrs. Virgil Dozark, sweepstakes-winning tenants.

The Dozarks moved to the farm 15 years ago when the land was eroded, crop yields were very low, gullies were prevalent, and weeds were thick. During these years Virgil, with the cooperation and support of his landlady, Rachael Hall, changed this into a top farm from the standpoint of erosion control, high yields per acre, a balanced livestock program, and security for present and future. The judges were unanimous in their selection of the sweepstakes winner. Those who know the Dozarks and the conservation program they have established on the 240 acres they operate were pleased to see the recognition come to them.

Every winner in this achievement award program has applied on his farm the kind of a conservation program that is also needed by his neighbors.



"Mr. Grassland" might well be a suitable name for Clarence Kaiser, chairman of the board of supervisors of the Crawford County (Ind.) Soil Conservation District, and an outstanding champion of conservation and grassland agriculture in southern Indiana.

Kaiser lives on what would be considered an average hill farm. Most of his 78 acres of pastureland was in persimmon, sassafras and briars when he purchased the farm in 1919. His 110-acre farm had been rented for 35 years, and what little was still being cultivated was badly eroded and low in fertility. He spent the first 9 years clearing and grubbing fields and building fences, raising the major portion of his needed feed from adjacent rented land. When 60 acres had been readied for cultivation, Kaiser began a 3-year rotation of corn, wheat and meadow. He had 3 mules, 20 head of sheep, and 2 cows. In 1931 his mules ran away with the binder, completely demolishing it. A good set of farm records convinced him that wheat, as a cash grain crop, hadn't paid well enough to

make possible the purchase of a new binder. Some other method of handling his eroded sandstone soils for better returns had to be devised. More production and a heavier livestock program were necessary to have an economic operating unit.

Kaiser decided it was time to try something else. He and the county agent established some grass-clover fertility test plots and measured the increased hay yield against the increased lime, fertilizer and seed cost. To Kaiser's surprise, the net return from the fertility plots was far more than anticipated. The more responsive plots had returned five times as much forage as the untreated ones. It was at this time that he made his decision. He said, "If those small test plots will make that much forage, then why won't my whole farm do it? I can make my farm five times as large without increasing the acreage."

He immediately set about getting his entire farm into clover and grass. He started out by working up one field each year. He had helped bring lespedeza into Crawford County, and now he decided that a new clover—ladino—might suit his conditions and those of many other hill farmers. He is credited with doing as much as any one to bring ladino into our Indiana fields. He is always eager to try out a new grass or clover that might possibly increase his forage and improve his soil conditions.





Clarence Kaiser.

Clarence is still operating the farm. The same acreage now produces annually about 90 tons of hay and 320 days of pasture, which together help support 260 head of sheep, 40 head of cattle and 1 saddle horse. His woodland is protected from fire and livestock, and is being managed as a crop.

Many people, groups, and organizations have visited Clarence to see firsthand how he has done this remarkable job. He estimates that 9 to 10 thousand people have visited his farm in the past 5 years. Some people have suggested jocularly in the past that Crawford County should be given

back to the Indians. You don't hear that kind of talk any more. Instead of turning his back on a bad situation, Clarence Kaiser has been a leader in developing a new and successful grassland agriculture. He has been active in whatever county or community endeavor has promised to bring better conditions for farm people. He has appeared as speaker on many programs to explain his operations, and he is well known for his wit and humor in reciting poems of his own composition.

Besides serving as chairman of his soil conservation district since its formation 5 years ago, he is active in the county Farm Bureau, Farm Bureau Co-op, R.E.M.C., and a staunch member of the county extension committee. He is a faithful churchman and subscribes to the philosophy that whoever deliberately destroys the good earth has committed a dire sin.

It would seem that Kaiser has met the test of the old Persian Proverb, "God will not seek thy race, nor will He ask thy birth, alone He will demand of thee, 'What hast thou done with the land I gave thee?'"

—DONALD SLOAN AND M. M. MERRITT

## "SCIENCE" OF SNOW TAUGHT

(Continued from page 198)

the Weather Bureau, was based on the principle that water absorbed radiation.

Cobalt-60, a radioactive isotope, is placed in a covered concrete box at the surface of the ground. Mounted above on a frame, placed high enough to surmount the expected snowpack, is a Geiger counter. The radiation thrown off by the cobalt varies with the amount of snow lying above. The impulses received by the counter from its radiation are transmitted by radio some 30 miles.

In measurement by small airplane, the pilot lands near the snow course and takes his reading or flies past a marker with a vertical series of arms. He photographs it or notes how many of the arms are sticking out of the snow. This gives him the approximate snow depth but not the density.

Such methods are looked upon as satisfactory for early season reports and as valuable, from a supplemental standpoint, at the crucial date of April 1, when every course in the west is measured. Most of them are measured at least once a month from January until May.



# San Pedro is Less Greedy

By MERVIN H. WALLACE

**A**RIZONA'S San Pedro River again is confined to its original channel where it runs through John Weik's 440-acre farm at Hereford. By the end of 1937, the river had cut away 10 acres of the farm and made several more acres unfit for farming because of headcutting by floodwaters.

In 1938, Weik began to control bank cutting. He was aided by the CCC Camp at Naco. Several hundred large trees were tied under the banks with cables. They were backed up with plantings of black willows and cottonwoods. Each year since 1938, Weik has kept the tree strings in good repair, and has carried on a continuous program of tree planting.

Now, after 13 years, the river is back in its original channel and the 10-acre area has healed up and filled in so that part of it can be utilized for farming; the rest is growing grasses for livestock. Tree growth along the banks is so dense that there is no longer a serious threat of bank cutting.

To prevent further headcutting by a tributary, Greenbrush Draw, and by irrigation tail water, the CCC tractors built a large dike the full length of the farm next to the river, and several diversion dikes. Excess water is put through the dike through pipes. Weik reports that dike repairs and gopher control campaigns have been carried on consistently. The dikes are in excellent condition.

The control of the San Pedro is only one of many conservation measures on the farm. When Weik came to the valley in 1922, he grew truck crops on 41½ acres along the river on a share basis. This land was all washed away by 1929, when Weik returned to Hereford and bought his present property. Out of 65 acres that had been farmed, only a very few acres remained that could be irrigated. The land was very rough. The bottom land was badly gullied by floodwaters from Greenbrush Draw, leaving very little usable land. Some

of the gullies were more than 10 feet deep. For 25 years Weik has carried on a constant battle with nature; he now has 120 acres of land in cultivation. With production running as high or higher than the average for the valley, all of the gullies have been filled in and the land is fairly uniform in topography.

Greenbrush Draw no longer is a menace. In fact, it now adds to the farm income. The wash no longer runs uncontrolled, no longer cuts gullies. He takes out a controlled amount of floodwater and uses it for irrigation. This has also proved to have its drawbacks because of the uncertainty of floodwaters which have the habit of either not coming at all or coming when the hay is ready to cut or bale.

In 1942, while his two sons were in the armed services, Weik started to build a large masonry drop in Greenbrush Draw just above his farmland. The drop was completed in 1945. It acts as a diversion for taking out a small part of floodwater into his irrigation ditches, allowing the balance to go on down the wash. He has had to add to the structure from time to time and is planning to add 10 feet to the apron next year. The neighbors helped with rock hauling and cement mixing. All of the rock was hauled on trucks from the Huachuca Mountains 12 miles away.

Weik paints a grim picture of the early days in his farm development. He started out with only about \$30 in his pocket, and with a farm riddled with gullies and largely bereft of topsoil. The first years were lean and it was a struggle to make a living, meet payments on the farm. By hard work and long-range planning, assisted by his district and SCS technicians, he gradually attained prosperity. Principal crops are alfalfa and small grain. Non-cultivated land supports 50 to 60 head of cattle, with slight supplemental feeding.

The irrigation system now consists of 4 small wells widely scattered and not too conveniently located. They produce about 275 gallons of water per minute each. The tending of water from these wells sometimes runs into almost a 24-hour day. Two small irrigation reservoirs in the middle of the farm relieve this to some extent. A new 16-inch well has just been tested at 2,000 gallons per minute, and a new 5-acre-foot reservoir has been built. The well and reservoir are so located that the entire farm can be irrigated.

Weik is reorganizing his fields and ditch system

NOTE.—The author is area conservationist, Soil, Conservation Service, Safford, Ariz.





The black willows and cottonwood trees attest the victory which has resulted in complete bank stabilization.



Weik and son Alfred are partners now. Here Alfred is seen maneuvering the new tractor in construction of 5-acre-foot storage pond.

to reduce the labor for irrigating. He plans to level all fields. The new ditch layout will be concrete lined. He plans to develop an additional 80 acres, bringing his cultivated acreage up to 200. His plan will be similar to his present system except that it will include some permanent grass pasture.

His livestock numbers will be somewhat increased.

Weik is proud of his accomplishments and enthusiastic about the future. He has been a supervisor of the Hereford Soil Conservation District since it was organized in 1944, and is active in community affairs.







**T**HIRTY acres of wet land that he drained and converted into lush ladino-grass pastures, as part of his cooperative program with Tolland County Soil Conservation District, tipped the scales in favor of Ernest Kupferschmid, Ellington, Conn., dairy farmer, the 1953 champion among 3,000 entrants in the annual New England Green Pasture Contest.

In one of the tightest six-state contests that the program has ever had, Kupferschmid first won the competition in Tolland County, and then in Connecticut where 310 farmers strove for top honors. In the finals, with 18 first, second and third place State winners competing, Kupferschmid was declared the top man for all New England.

Ernie has been building better pastures since 1941 when he took over management of the farm from his father. He was born on the place and had been a full time worker there since his grammar school days. In 1948, the first year of the New England contest, he was one of the three Tolland County winners. Two years later, he was again among the top three there and competing for the State title. In 1952 he stepped out and won the efficient fall milk production program championship in Tolland County, with an average output of 1,200 pounds per cow. His grain feeding ratio then was 1 pound of grain to 6.6 pounds of milk, and his production through the year never varied much from 20 cans per day.

In his 84 head of grade Holsteins he has 46 milkers and 38 young stock. In August 1953, from 43 milkers the average was 1,333 pounds of milk and 45.6 pounds of butterfat per cow and his grain-milk ratio was 1 pound of grain to 5.7 pounds of milk.

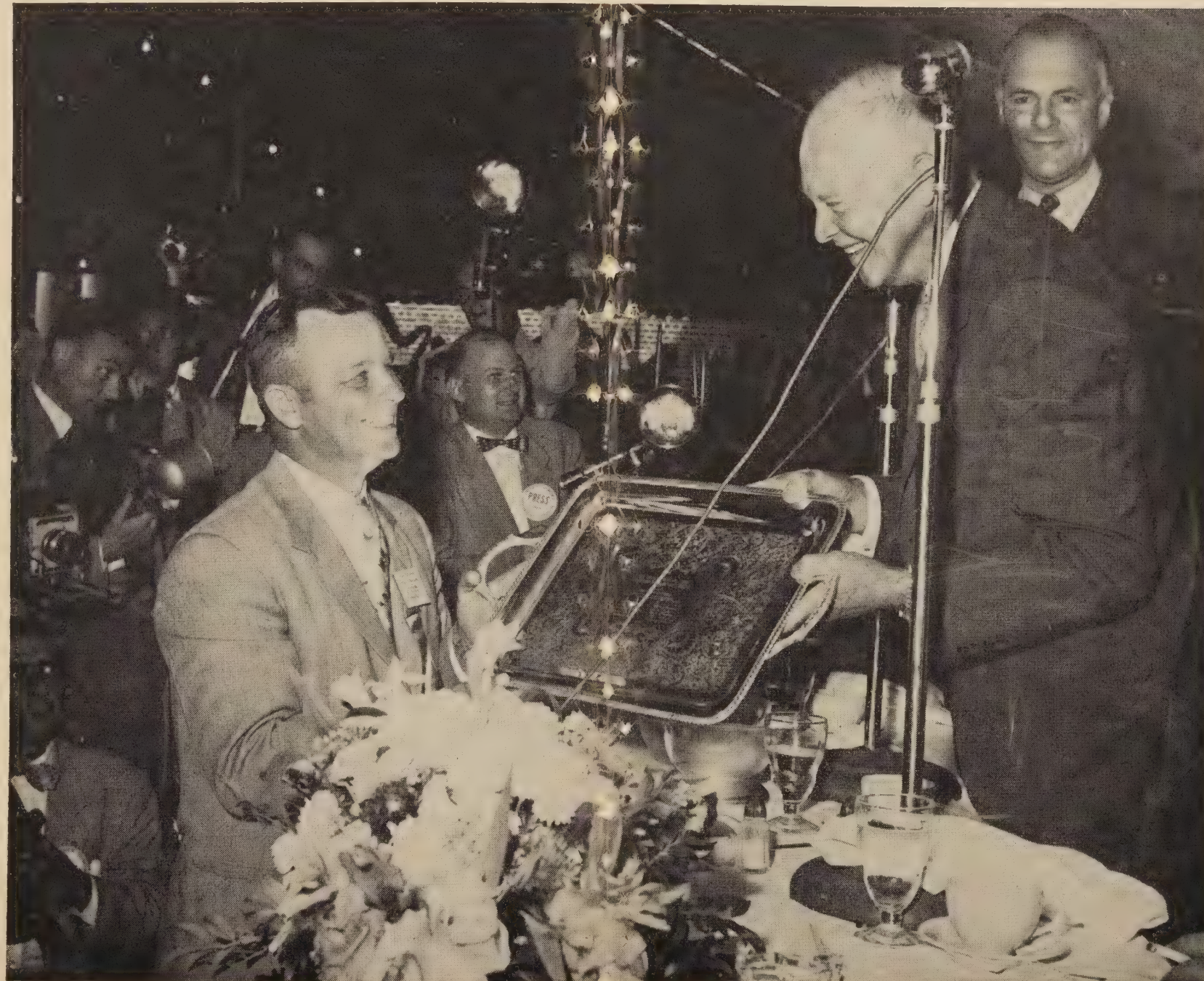
Kupferschmid owns 2 farms totaling 180 acres, and rents 56 acres more. About 160 of the 236 acres are in cropland, the balance in wet land. Backbone of his operations is his forage. In 1953 he had 87 acres in the ladino-grass mixture, and 12 acres in permanent pasture. Production from about 50 of these 99 acres was cured for hay, 25 acres of alfalfa being cut 3 times. A fourth cutting in some fields was ready in late September.

In April he had 11 acres of rye available for pasture. By early July, 12 acres of oats in new seedings were ready for the cows, and when August came 10 acres of Japanese millet were waiting for the herd—altogether, about 7 months of top

# His Pastures Were the Greenest

*New England's 1953 champion year by year made progress in building milk production. He set a national example with grasses and legumes, conservation methods, good management. And his achievements brought a coveted award from the hands of the President of the United States.*

By HUGH F. EAMES



Ernie Kupferschmid receives his New England championship trophy from President Eisenhower. (Photo by Hartford Courant.)

pasture. In the reconditioned wet land, corn went in when grass came off.

Cheered by the results from reconditioning his wet land, Kupferschmid has asked the Tolland County Soil Conservation District to guide him in draining and clearing 55 more acres of boggy land. "Drainage is too important to guess at. My eye isn't good enough for use as a substitute for a level," he comments.

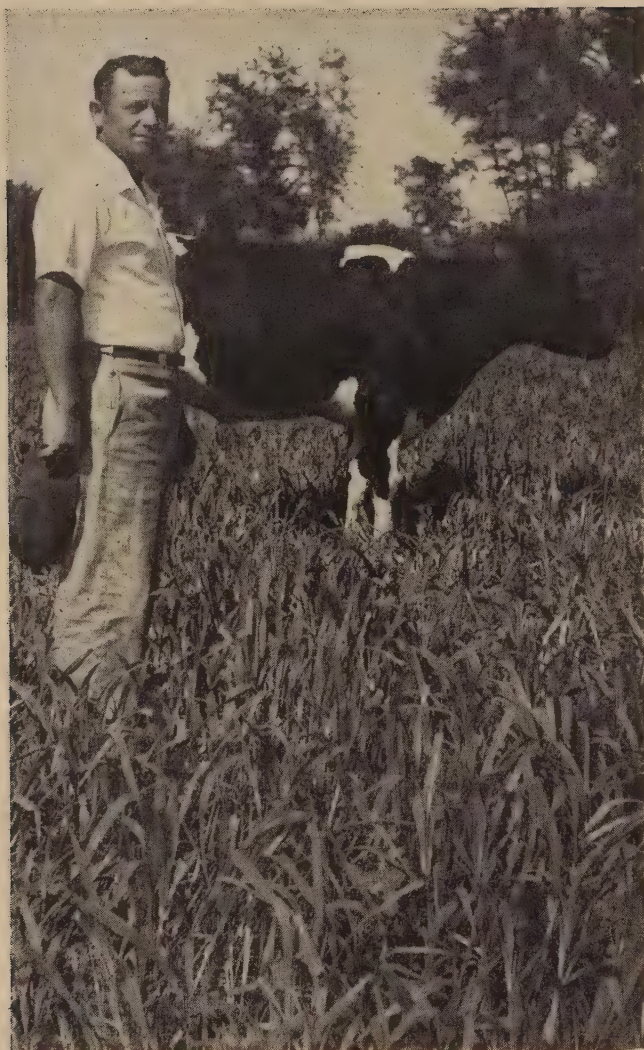
Ernie has been working with the soil conservation district since February 1947, just after it was organized. With the help of the Soil Conservation Service technicians who work with the district, he dug 6,400 feet of open ditches that drained 18 acres and benefited other areas, and treated 50 additional acres and put them under good management. The reclaimed acreage, he believes, are about the best year-after-year productive land that he has, because it resists drought. He got the proof during 1953's severe drought when his higher land, like that of other farmers, was bone dry. In the reconditioned wet land, in September when the torrid wave was at its peak, he was able to reach down, pull out a handful of ladino-grass and say: "See, the roots are still wet!" An observer noted that these fields were "as green as the Emerald Isle" and that the "growth was thick and knee high."

Ernie, a 41-year-old bachelor, is a son of Swiss parents who reared 3 sons and 4 daughters. Since their parents' deaths, brother Elmer has been Ernie's housekeeper, with gardening and beekeeping as sidelines. Two hired men help with the farming. Ernie is a cheerful, alert and energetic chap who has aviation as his hobby. He owns and flies a 2-place plane, takes off and lands on his pastures which he says "are as smooth as any airport." He flies mostly for fun, and, as he says with a twinkle in his eyes, "to look at my farm and my neighbors' farms. When they are greener than mine, then I know something is wrong here and get to work on the problem."

He credits much of his success to assistance received from agencies like Connecticut University's Extension Service and USDA's Soil Conservation Service and PMA. He's active in Farm Bureau and was 1953 chairman of his community PMA committee.

Winning of the New England green pastures title has brought new demands on the time of this very busy farmer. He's swamped with invitations to

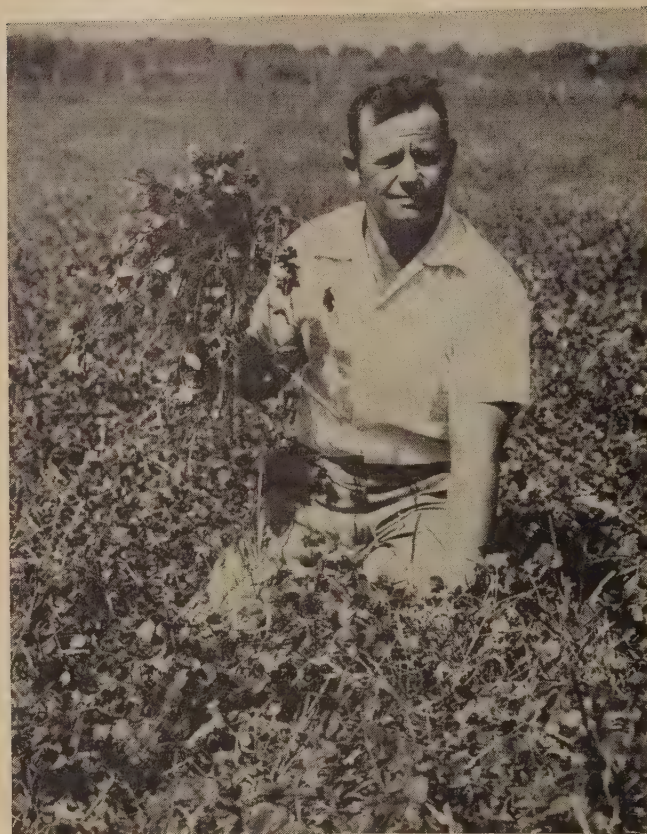




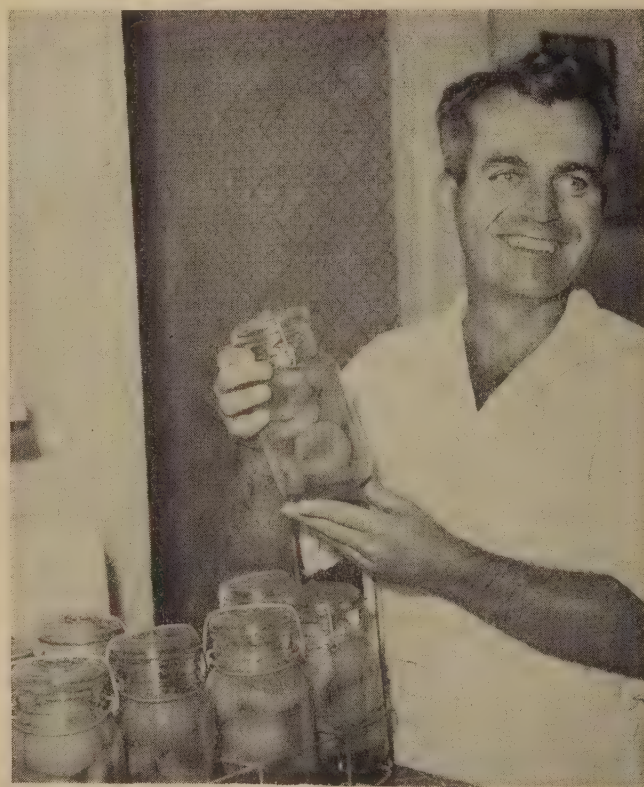
**Prize forage, prize cow, and Ernie Kupferschmid himself.**

Ernie Kupferschmid speaks here and there, and between farm work and public appearances has to give a lot of time to visitors who come to see the championship place. For example, the other day he finished a barn meeting of cattle breeders at his place at 4 p.m., rushed into the house, bathed, shaved and dressed in half an hour, climbed into his plane and at the evening dinner hour was the guest speaker at the annual gathering of artificial breeders at Poughkeepsie, N. Y.

When he spoke before the members of the New York Farm Club which meets at the Columbia University Club in Manhattan, the chairman of the board of Standard Oil of New York and a high official of Standard Oil of New Jersey were among those who quizzed him after his talk. All are always invited to "come up and see me some time," and many do, particularly when there is good small-game hunting at Ernie's place.



**At height of 1953 drought, Ernie pulls up a handful of ladinograss and exclaims: "See! The roots are still wet!"**



**Elmer handles his end with expertness; he turns out a fine can of peaches and bakes a good loaf of bread.**





**His plane helps. When Ernie, aloft, notes a greener field than his, he tries to figure what is wrong and goes to work on a new problem.**

Correspondence takes a heap of his evening hours. Questions about how or why he does this or that roll in by mail from all parts of the country, and he tries to answer all of them. A farmer in Indiana wants details about his seeding practices, and a woman in Oregon, who owns a farm in Nebraska, wants to know about land clearing, the kind of equipment he uses, cost of the work, his preferred seed varieties, and how much fertilizer he uses.

Most of these developments come out of the attention that newspapers, farm magazines and other



**Ernie displays some of his millet for fall feed to County Agent John Elliott—right—who helped him with his grassland program. (Photo by Ted Blakely, CMPA.)**



publications have given to his championship achievement, and to the attention that was focused on him, by radio and television, when President Eisenhower presented the New England championship trophy to him at the Governors' luncheon at the Eastern States Exposition.

Bad luck comes along with the good. For instance, when the Middlesex County Farm Bureau wanted him as a guest speaker at its annual dinner meeting, he could not go because he had lost one of his hired men and the other, hurt in an accident, had been taken to a hospital.

Ernie takes it all in stride, really gets a big kick out of the championship business . . . and his hat still fits.

## *“MR. MAC”*

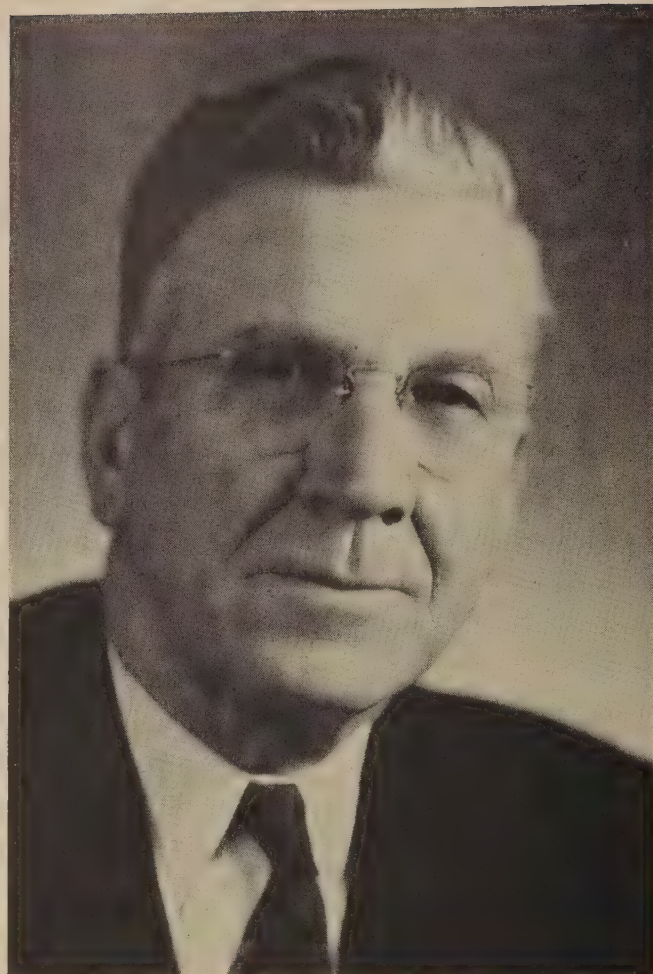
By L. L. LOUGH

THE land is greener, now—largely because of “Mr. Mac.” Out where West Virginia skies lean over corn and grass and trees, they also call him “J. B.” and “The Commissioner.” The state knows him as the Honorable J. B. McLaughlin, Commissioner of Agriculture. But nicknames carry greater dignity among big men and mountains.

Six-feet-two, “Mr. Mac” has dignified his State’s land management officially for two decades. Last fall, he moved into his 21st year at Charleston, a 6th term in the dual role that includes the chairmanship of the State soil conservation committee.

The glimmerings of a brighter day for West Virginia’s hard-pressed farmers showed early in “Mr. Mac’s” career. He welcomed the Nation’s first encampment of the Civilian Conservation Corps, and speeded a better land use program for the State’s millions of eroded acres. To do this, “Mr. Mac” grasped the opportunity offered by soil conservation districts.

The commissioner’s support of the struggling, new districts is typical of his unfailing whole-handedness. His 10 years as a Farm Bureau leader had taught him that farmers need more than a pat on the back. With the money and facilities he helped secure, 14 districts got going. Today, a quarter million dollar appropriation provides heavy



machinery for rugged conservation engineering. A fund that has grown from \$10,000 to \$100,000 biennially in “Mr. Mac’s” reign furnishes district offices with all the appointments of going concerns. Besides, the soil conservation committee has boosted district operations with the full-time assistance of a state-employed executive secretary, a field agent, and an equipment mechanic.

This kind of backing has pushed West Virginia into the top ten bracket of states in conservation achievements. The results show in the fourfold leap in farm income since the gray days of 1932; in the sleek, homegrown cattle now welcomed by breeders throughout the world; and in the scores of bustling new farm market centers.

The one-time farm boy from Braxton County sees the greatest change in the face of the land, itself, where thrifty new pastures have replaced impossible plowland; and contour strips have healed the gullies of yesteryear; and farm ponds and neat troughs have answered the plaintive cry for water.

NOTE.—The author is state conservationist, Soil Conservation Service, Morgantown, W. Va.



Nearing threescore and ten, "Mr. Mac" still has need to assign his surplus energy. He's a farm cooperator with both the Western and Eastern panhandle soil conservation districts. At Apple Pie Ridge, near Inwood, he's busy converting his latest 150-acre venture from rundown orchards to a grassland, livestock enterprise. His inventive turn of mind has produced an ingenious soil mixer and a water pump. He gives other "spare time" to the Future Farmers of America, to whom he has devoted 20 years; while Morris Harvey College

has grown under his continuous trusteeship ever since its founding, 30 years ago.

A richer, family life—both for the rural folk he serves and for his own household—has been one of the abiding goals of "Mr. Mac's" life. He's understandably proud of son James, a distinguished flyer in World War II, and daughter Eleanor, who serves with the Red Cross in New Jersey. And he hopes that somewhere along the line he's contributed a little toward a better America for his three young grandchildren. They're his favorite hobby!

## Wide Range of Land Use in One Massachusetts Area

*Truck, poultry, fruit and dairy enterprises invoke many modern conservation practices. Here is a sampling of experiences common to Worcester County farmers.*

**M**ORE than 1,000 Worcester County farmers have learned the value of conservation methods as applied through soil conservation districts. They are among those farmers who led off in conservation in Massachusetts in 1945.

Application of the district program to the needs of any farmer seeking help calls for a high degree of flexibility. In this Worcester County proving ground there is an amazing degree of diversification.

Full-time Worcester farmers, operating in three districts in the county, are reaping benefits in such highly specialized production as fruit, market and canning vegetables, dairy, poultry and other livestock, and general farming. There is a wide variety of cash crops. The 1,100 farmers operate on small, medium and large scale. They include the young and the old. They are in the valleys and on the hills. Through their districts they have received technical and other on-farm assistance on nearly 150,000 acres of land on which they make their living, build their security for the future, and at the same time provide an equal opportunity for those who follow.

Orland C. Doe had a problem. His two sons,



**Howard Borggaard plants vegetables on modified contour as help in maintaining desired moisture levels.**

Whitney and Bill, finished school, married, and were ready to settle down at Hawbuck Orchards, at Dudley. Hawbuck, one of the largest commercial orchards in the State, had 3,500 trees on 100 acres. How to get more acres of fruit, enough production to support three families, was the problem.

The answer was found in the Northeastern Worcester County Soil Conservation District, when the Does and SCS technicians made a complete conservation plan. Emphasis was focused on better land use because there was unproductive land either burdened with brush and stone or too wet.



In 1950 the Does cleared and renovated 10 acres; the next year, 15 more. That made room for 1,000 more trees. In another 10-acre tract fruit trees were being lost because their feet were wet too much of the time. Tiling was installed at a cost of \$400. Production improved. A lot of stone walls were removed. This meant that work could be done with greater ease and at less expense.

While the Does had too much water in some parts of their orchards, elsewhere there was not enough water to meet the spraying needs. They were traveling 40 miles daily to get such water, at a cost that ran into hundreds of dollars. To end this problem and also to provide fire protection and cut insurance premiums, a 500,000-gallon farm pond was built.

"What we have been able to gain through our conservation plan, gives us a nicely balanced operation," says the owner. "And we find ourselves with a recreation spot and some fishing for dad. When our newly planted orchards come into bearing, first peaches, then apples, we'll have reached the limit in quantity production. That's why we're centering our attention on quality."

Back in 1949's tough drought, Freddie Cournoyer, Paxton market vegetable grower, almost lost his shirt because he hadn't given attention to water management. Determined not to let it happen again, he enlisted the help of the Northwestern Worcester County Soil Conservation District, and built a 60,000-gallon farm pond which was fed by springs and a small stream. It cost him \$70, and he got \$40 of this money back through a U. S. Department of Agriculture cost-sharing program for establishing permanent conservation practices. Since then, in every field where he operates, including rented land, he is backing up the pond with a small dugout wherever a spot can be found.

In 1952, and again in 1953, Freddie was able to irrigate his vegetable crops 8 to 10 hours daily, 5 days a week, June 10 through August 15, at a rate of 400 gallons per minute, pushed through iron pipes and sprayed by a giant nozzle 30 feet in the air. A circle with a 225-foot radius can be covered from one point.

Other farmers in the neighborhood, lacking this sort of dependable water facilities, were lucky to get one good picking of market vegetables. More often the harvest was skimpy. Freddie had as many as three pickings that were high in quantity and quality. Ninety percent of his sweet corn

graded No. 1. Non-conservation and non-irrigating growers produced 10-pound to 15-pound squashes. Freddie produced 75-pounders. All of his production, including berries, potatoes, beans, iceberg lettuce and tomatoes, came off class 2 land—his best.

Last year yields of 450 bushels of potatoes per acre on one plot, and 500 bushels per acre on another, were obtained by Cournoyer without irrigation. Freddie did this in a drought year by maintaining organic matter in the soil, and working the land as little as possible to avoid compaction. Such water conservation practices permit the soil to absorb and hold water.

Cournoyer's success stems largely from his practice of backing up every \$3,000 he invests in his land with another \$3,000 to protect his stake. He's been farming in the Paxton area for 12 years, owns 42 acres and each year leases 35 more. All of it he handles the conservation way.

Starting with a worn out, severely eroded, badly gullied place, with depleted soil structure, his enterprise clicks now because he has built production back to a high level and put his water resources under careful management. Through work done with his district, he's now prepared to meet a wet or a dry season or other unfavorable conditions.

When there is superabundance of water from long hard rains, or even a flash flood, his diversion terraces, sod waterways, contour stripcropping and cover crops disarm erosion and slow down runoff.

When it becomes dry and his crops need water he backs a portable irrigation system out of the equipment shed and gives his crops the drink they need. Thus, he meets a drought head-on, like a New England village fire department.

When Bill Jamsa came back from the war to relieve his dad, Jack Jamsa, by taking over management of Skyland, a poultry farm his father started at Westminster 23 years ago, Bill made out nicely with the help of his Northwestern Worcester County Soil Conservation District.

The Jamsas needed more range, so they could have larger flocks and increase egg production, their sole cash crop. Technicians, working with the district, helped them establish good, rugged sod on which birds could roam for a year, before the land was laid away for 2 years of rest. Bill Jamsa started this expansion by clearing 3 acres, and is rapidly moving toward a goal of 10 more. That will give him 3 ranges instead of 2, and permit him





**This is the kind of land, with trees, brush and stone, which the Does have cleaned up to make way for a thousand more trees at their Hawbuck Orchards.**

to get full service from the rotation system. Run-off from slopes had become a hazard to farmstead, other buildings and the flock. Bill Jamsa wiped out the menace by building a diversion ditch that handcuffed the runoff.

Arthur Snow, a Charlton dairy farmer, is a good example of how a farmer can become a real conservation operator without spending a lot of hard money, if he is willing to do the establishment with his own farm labor and equipment.

Before 1948, when he farmed with conventional methods, Art Snow's hillside fields were badly

washed and torn. He wasn't getting much good out of lime, fertilizer and manure.

Now he is benefiting from 23 acres of contour strips and an 850-foot diversion ditch. Seven highly productive acres have been added by clearing and renovation. Operations have been eased and made less costly by removal of stone walls that interfered with his use of labor-saving machinery.

Corn and grass rotations, strips and diversion, stopped erosion in its tracks and permitted Snow to rebuild soil fertility and get full values out of lime, fertilizer, manure, and better seed varieties.





**Arthur Snow licked erosion and built back his soil to top productivity. Among his measures were alternate contour strips of grain and grass, and a diversion ditch that runs across the slope near the top of the hill.**

Snow says, "I think the production dividends now starting to roll in will continue to pile up faster and faster."

Harold Easterbrook and his son Henry, who are general farmers at Dudley, make good use of conservation farming in enterprises that include poultry, beef, sheep, and fruit. They have 45 acres in apples, raise 600 turkeys, and handle 40 head of beef animals and 150 sheep. Most fruit and turkeys are sold to customers who come and get them. Clearing and renovation of wasteland has provided more pasture and opened the gate to twice as many sheep.

Production increases have been made possible by working with 12 acres that had not been cleared, and 20 acres of wet land that was grown up to alders and other brush. These acres are now in lush pasture and fruit. Five diversions and outlets protect land that drops 50 feet within a quarter mile. The Easterbrooks built 2 of them with their own farm equipment and labor. About 1,300 feet of waterways improvement and protection work has been done and 1,200 feet of multiflora rose fence have been built.

Since 1886 the Borggaards—Howard and his father before him—have been producing fresh vegetables for Worcester people, on a small acreage in the city's outskirts. More than 90 percent of their production was sold at the farmstead stand. There never was enough to meet demands from a growing army of customers.

Less than a decade ago, how to get more vegetable production was a pressing problem with



**By clearing brushy waste tracts where wild grasses and weeds stand waist high, Jack and Bill James are developing 13 more acres of range that will give them additional room to rotate their poultry. More birds and more eggs are their production goal.**



Howard; he had 6 of his 10 acres of cropland in production. With the help of technical services received through the Northeastern Worcester County Soil Conservation District, he now has 20 acres, of which 12 are in vegetables. More wasteland is being brought into use.

Cropland terraces, in a modified contour pattern, are the base from which Howard Borggaard has

fruit enterprises in Massachusetts. These problems were taken care of under a complete conservation plan worked out with his Southern Worcester County Soil Conservation District.

Lincoln took 4 divided pieces and put them together in a single unit of 15 acres. Clearing and drainage added 7 new acres to 8 where it already was practical to operate.



**One of the dug-out waterholes that enable Freddie Cournoyer to contend with severe drought.**

successfully fought erosion resulting from runoff. A bit of drainage work here and there has wiped out the wet spots. Clearing has removed obstructing stone walls and hedges. What to do with the many stones was a tough problem with Howard until he found a contractor who could use them in construction jobs.

That's how Howard Borggaard has become able to serve more and more customers with more and more of the good fresh produce they want. Two crops come off his land every season. Among them there is nothing prettier than the asparagus, corn and potatoes that come off the contour strips. In the winter the land is kept under a rye cover.

Drainage problems vexed Hamilton Lincoln at his 126-acre Brookfield Orchards, one of the largest

The other day, when he took a brief breather from an almost endless rotation in farm-management duties, Lincoln looked over the improvements and observed: "This conservation farming idea is as good for orchardists as for other farmers. It has helped all 126 acres of this farm."

In Massachusetts, all other counties have soil conservation districts, too. They include more than 5,300 farmers, operating on nearly 600,000 acres. And a recent summary lists this fine record of accomplishment in the State: 23,398 acres pasture improvement, 2,874 acres contour strips, 120.03 miles open drains, 115,855 feet closed drains, 45.20 miles diversions, 8,672 acres land clearing, 15,836 acres cover crops, 14,424 acres rotations, and 564 farm ponds.



# Good Start in a Rugged Country



Ten years ago woodland pastures were common. Today they are rarely seen under the intensified pasture-improvement program.

By ALLEN C. WEBER

**I**N Menominee County, Mich., at the tip of the Upper Peninsula, farm people and others saw the need for soil conservation when they voted in a district in 1943. Albert Kipfer, one of the successful older farmers, who became the first chairman of the local governing body, voiced the thoughts of many when he said, "This is new farming country. Let's start now to save and improve the soil we have."



Blasting for muskrat habitat in peat soils of Menominee County.

*Pioneer farming in Michigan's Upper Peninsula involves special problems.*



Steve Kakuk, private contractor, uses a bulldozer to bury boulders in a field day demonstration.

So the new district went to work. It was in practically pioneer farming country. Some of the problems were different from those found in most other districts. Most of the 1,850 farms had crop acreages too small for modern machines. Some of the farmers were former lumberjacks who remained after the big timber was harvested. Land on steep slopes was being farmed when it should have been left in trees. Even though land had not been in cultivation long, erosion was getting a good start. Stone fences stood in the way of contour farming and stripcropping, and grasses and brush of no economic value grew in open areas of peat marsh.

The new board of directors took stock of the situation and mapped a program. With assistance from the Soil Conservation Service the program got under way.

Later, Elving Thorpe, operating the farm he was born on 50 years ago, said, "I was the first co-operator in the new district. The farm plan now in operation has meant a lot in both money and convenience. I wish there had been a district here 20 years ago."

NOTE.—The author is work unit conservationist, Stephenson, Mich.





Allen C. Weber, work unit conservationist, stands in ditch blasted in peat soils in an experiment to establish a muskrat habitat. The Michigan State Conservation Department cooperated with the soil conservation district.

Orville Cappaert was one of the many returned World War II veterans who asked for assistance in making a soil conservation plan as one of his first steps after purchasing his place. He said recently, "District Assistance got me started on the right track. I think it's a 'must' for the beginner."

Present chairman is Wendell Sandahl, also a World War II veteran and serving his second term on the board. He feels that forest management will always be an important part of the soil conservation program in his district.

Hundreds of thousands of trees have been planted on land not suited to tilled crops. Seven thousand acres of contour stripcropping and 26,000 acres of pasture seeding have been established, along with an impressive record of other practices.



After World War II it was conservation farming that got Orville Cappaert and his family started on the right track.

The district established its own nursery this year. It operates a bulldozer and marsh plow. This year they received a mechanical tree planter as a gift of the local bank and a dealer in wood products. Many stone fences and stone piles have been moved or buried to make way for soil conservation practices, some land is being cleared, and some farms have been combined to make larger ones. Several hundred acres of Reed canarygrass have been seeded in wet peat or muck land for pasture.

"The record doesn't look bad at all," says Chairman Sandahl, "It's at least something we can stand on while we reach for better things."

**THIS IS DEFENSE, TOO.**—A recent news dispatch from Ft. Hood, Tex., reports that the 61st Engineer Battalion, which does construction work, offered free dirt to other Army units there. The "Friendly Topsoil Service" was to help the other units improve their grounds.

**FFA WINNERS.**—National winner in the soil and water management awards program, sponsored by the FFA Foundation was Joe Coleman of Mineral, Va. Regional winners were: Norman B. Strebin, Gresham, Oreg.; James H. Maguire, Philipsburg, Pa., and Curtis J. Bohannon, Greenville, Ill.

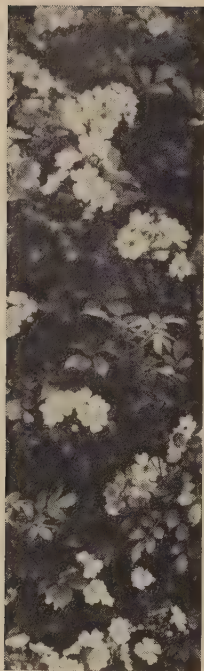
**NATIONAL 4-H AWARDS.**—Winners in the National 4-H soil and water conservation awards program were: David E. Peterson, Morrison, Colo.; Jack Van Horn, Pomona, Kans.; Duane S. Sargent, Simpson, Mont.; Derald W. Suffridge, Brinkman, Okla.; Walter N. South, Bloomington, Ind.; Carroll F. Leatherman, Jr., Myersville, Md.; James L. Baker, Ithaca, N. Y.; Don T. Elledge, Maybank, Tex.

**MORE MOUTHS TO FEED.**—According to statistics published recently, there will be about 40 million more people in the United States to feed and clothe in 1975 than there are now. The birth rate in 1953 was 24.6 per thousand, a little less than that of India (26.8), and is the highest rate in the history of this country. The estimated population increase is probably conservative.

Observations made recently of agriculture in nine counties of Africa, Asia, and Europe have made me especially conscious of this population growth in relation to available good land. In Egypt, for example, some 25 million people must get most of their food from about 6½ million acres of land. This is comparable roughly to a population of more than a billion in the United States. Part of the price of such intensity of land use obviously is paid in terms of living standards. There are other countries with similar population pressures on the land where the most that can be expected for many is survival.

—W. R. TASCHER





## *Safer Superhighways*

(Reprinted from *Science News Letter* for December 12, 1953.)

Research studies conducted by Motor Vehicle Research, Inc., South Lee, N. H., indicate that a popular Japanese rose, if planted along America's new superhighways, could cut traffic deaths. [New value for an established conservation plant!]

The multiflora rose can be made to grow into a matted hedge from 6 to 10 feet tall. It gently absorbs the shock of collision when an automobile runs off the road. In contrast, large trees absorb the shock abruptly, endangering the car's occupants.

Test cars have plowed into a heavy growth of the Asiatic rose at speeds up to 30 miles an hour. The tangled branches stopped the car in 11 feet without harming driver or passengers.

Such stops approximate "panic stops" on the highway when motorists jam on the brakes in emergencies. The researchers said they believe these crash stops could have been tolerated even at speeds of 50 miles an hour.

Andrew J. White, director of MVR, Inc., states that accident investigations over many months have revealed that many lives are saved by small trees and shrubs along highways.

This led him to seek a hardy, rugged scenic shrub that could be planted along the margins of superhighways and in the middle dividing strip often filled with grass. Ideally, the shrub should thrive in many types of soil, requires little or no attention, restrict its growth height and retain its automobile-braking qualities even when denuded of foliage in winter.

The multiflora rose seems to offer the best compromise of all the desired qualities.

Mr. White adds that such landscaping of highways also would produce these benefits: reduced headlight glare at night from on-coming cars, reduced force of wind gusts which sometimes make driving difficult and reduced numbers of domestic and wild animals on the road. The rose hedges also might double as living snow fences.

He estimates that highways could be equipped with the multiflora rose at about 5 cents per foot of road. The plants will grow after being crushed by a car and "cannot be killed out, even when burnt over," he added.





*May 1954*

# SOIL CONSERVATION

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE



# SOIL CONSERVATION •

MAY 1954

VOL. XIX—NO. 10

**EZRA TAFT BENSON**  
SECRETARY OF AGRICULTURE

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ADMINISTRATOR, SOIL CONSERVATION SERVICE

ISSUED BY SOIL CONSERVATION SERVICE  
U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

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**WELLINGTON BRINK**  
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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**HANDBOOK FOR TEACHING CONSERVATION.**—The conservation committee of the National Association of Biology Teachers has decided to extend their committee beyond the 3-year period covered by the \$10,000 grant-in-aid by the American Nature Association which expires this June.

The committee will soon complete the compilation and editing of over 150 projects from 30 states submitted by state committees. The "Handbook for Teaching Conservation and Resource-use" containing these descriptions will be published by the Interstate Press at Danville, Ill., this year.

The committee has also reprinted an 8-page "Symposium on Training the Conservation Worker" which resulted from a cooperative project with The American Institute of Biological Sciences.

The Bibliography of "Free and Inexpensive Materials in Conservation Education" by Muriel Beuschlein is being revised contemplating a second printing this year.

The symposium reprint and the bibliographies are available for 10 cents each from Dr. Richard L. Weaver, project leader, P. O. Box 2073, Ann Arbor, Mich.



**FRONT COVER.**—Frank Wilson and a fine string of bream which he caught last year in Olin Helms' pond, near Lancaster, S. C. This pond serves a multitude of purposes, among others the irrigation of bottom land corn. Photo by J. B. Earle. (See Earle's article on page 235.)

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.



# Let Us Be Proud . . .

By MRS. W. L. SPEARS

*This farm woman who comes from Route 4, Okmulgee, Okla., made a speech last year which won the annual contest sponsored by the Spencer Chemical Company and the National Association of Soil Conservation Districts. Among her awards were a check for \$1,000 and a trip to the 1954 Convention of the NASCD. Her talk was entitled "Democracy at Work in My Soil Conservation District." Part of it we quote—*

CONSERVATIONISTS long ago realized that you cannot save land without also saving and managing water, so special attention was given our water-management problem. If a sudden flood washes away homes and soil, if human lives and livestock are lost, if newspaper headlines blaze forth the story, the very drama of the tragedy arouses everyone to action.

But our water management problem was not so easy. Ours was the undramatic, easily ignored one of insidious wind and water erosion. It is very easy for the average farmer to say, "Why should I be alarmed about a little gully in my cornfield?" But let's follow one little gully.

Rain and wind aggravated it and it grew. It reached the farmhouse and swallowed the sink with running water the farmer's wife might have had. It swept away the dream the farm boy had of going to college. It touched the rural school and the country church and left both emptier and more forlorn. It moved to the door of the city merchant, engulfing part of his profits, since farm customers had once accounted for 60 percent of his trade.

An undramatic little gully, but multiplied by thousands, it presented a frightening picture, a picture that through education and on-site technical assistance had to be given the farmers of my district before they could be aroused to action. So well have our supervisors and Soil Conservation Service technicians presented it that, since 1941, 35,000 acres have been contour farmed, almost 30,000 acres have cover crops each year, over 1,600 miles of terraces have been built, and over 700 farm ponds have been constructed.

In solving this water-management problem, we farmers have learned to work together for the good of all. Many of our terraces, drainage ditches, and waterways cross boundary lines and serve a group of farms in one conservation unit, for we have learned that no farmer ever alone owns a gully or the silt-laden water from an unterraced field.

\* \* \*

Democracy can thrive when each citizen is alert to seize every opportunity for betterment and then is willing to share with others. Our growing season had been a good one. On a ranch in my district, a fine crop of bluestem grass seed had been set, seed that could rebuild old pastures and start new ones. Word was passed around, and men and combines moved in. Before they had moved out, over 12,000 pounds of seed had been harvested by our supervisors, and then, through the efforts of district co-operators, a total of 300,000 pounds was secured, to be sold at cost to all who needed it. Again, democracy at work in my Soil Conservation District.

Democracy demands unity in action. The telephone rings and a voice cries, excitedly, "Get set! Leo's pasture is afire!" Immediately, that farmer's tractor is started and is on its way, its tank of water and pump bumping along behind. From all directions they come, some with pumps and others with equipment furnished by the State Division of Forestry, these conservation-minded men who knew

(Continued on page 233)





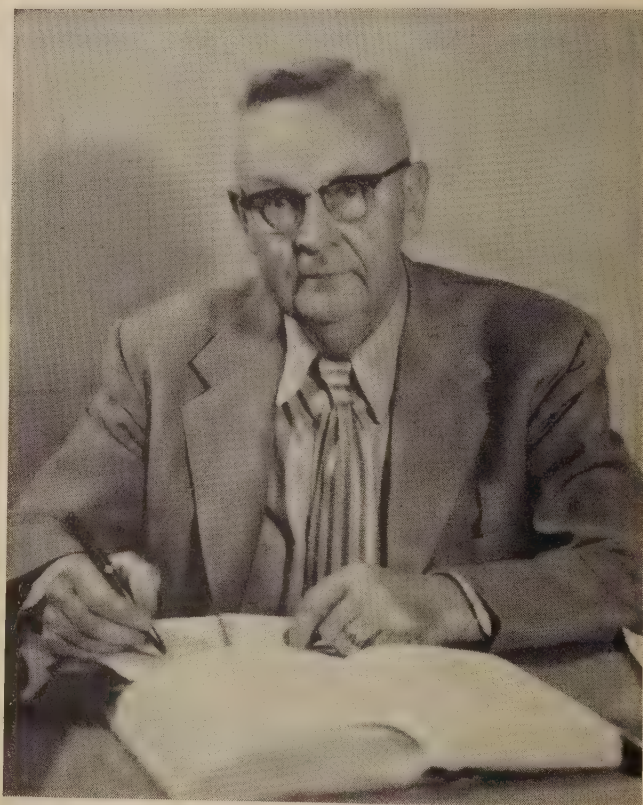
# The Arkansas Farmer of 1953

*By special permission, we reprint part of an article which appeared originally in The Arkansas Farmer.*

“**E**DGAR A. HODSON, agronomist with the Soil Conservation Service, is ‘The Arkansas Farmer of 1953.’

“Your state farm magazine asked a large group of key agricultural leaders all over Arkansas to select the man who they felt had made the greatest contribution to Arkansas agriculture during the year. The votes were tabulated and *The Arkansas Farmer* is glad to salute Mr. Hodson as The Arkansas Farmer of 1953. We congratulate him on his fine work in the development of a practical soil conservation program for the average farm in Arkansas. Mr. Hodson has worked with field personnel and soil conservation district co-operators in establishing a complete pasture program that will, in addition to protecting the land from soil and water losses, provide adequate year-round forage for livestock. He has given special attention to production of soil protecting crops that are best adapted for use in Arkansas and on the individual farm. He has helped to establish good pastures on unused land or land too badly eroded for clean-tilled crops, as well as helping with crop rotation systems and fertilization. Our rapidly developing livestock industry owes a great deal to Mr. Hodson and other agricultural workers who have helped make Arkansas a top pasture state.

“Mr. Hodson was reared on a farm in the Tennessee River Valley in northern Alabama. He received his B. S. degree in agronomy at Auburn, Ala., in 1911. He was then an instructor in field crops at North Carolina State Agricultural College for 5 years, where he received his M. S. degree in 1914. He did one year of graduate work at Cornell in agronomy and genetics, and then served in the photographic division of the U. S. Air Force in World War I. Mr. Hodson was marketing specialist with the Arkansas Agricultural Extension Service for 5 years and Agricultural Agent with the Missouri Pacific Railroad for 9 years. He has been with the Soil Conservation Service since 1935—first as Regional Agronomist with headquarters at Fort Worth and then as State Conservationist in



Edgar A. Hodson.

Arkansas. He has worked with Soil Conservation Service field personnel since 1948. He spent a month in England in 1949, some time in Argentina and Brazil in 1950, and a month in New Zealand in 1952, studying the establishment and management of permanent pasture. Mr. Hodson has been untiring in his study of better pastures and in his efforts to help Arkansas farmers establish them.”

**WINDBREAKS DOUBLE YIELD.**—M. M. Mulrennan, of the Hillsborough (Fla.) Soil Conservation District got twice the yield of cantaloupes from a field where strips of sweet yellow lupine were used as a windbreak, as compared with similar fields of the same soil type where no windbreak was used, reports E. E. Carter, president of the Florida Association of Soil Conservation Districts.

As an indication of the production of lupine seed, Carter points out that the Santa Fe Soil Conservation District estimates the value of lupine seed processed in their plant this year at \$100,000.



# Tall Grass Where Land Was Bare

By EARL B. SPENDLOVE

"THERE'LL never be much grass on this place, an' I kin eat all that'll grow on them ridges," an old cowpuncher told Marcellus Johnson.

The time was 1918. The place, a homestead that Johnson had just taken up on the Glendale Bench in southern Utah.

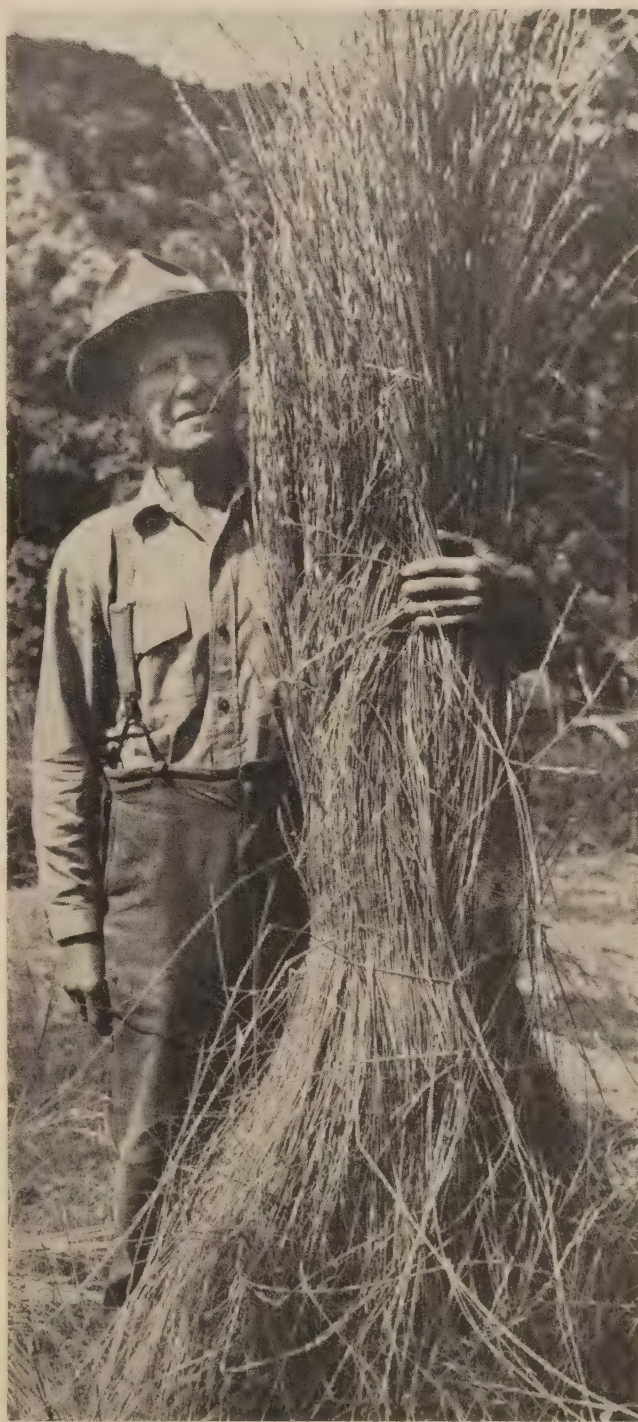
From all appearances, the cowhand was right. Stock had trailed over this particular area for years on their way to and from the winter ranges in Arizona and the summer ranges in the mountains of southern Utah. Grass was a scarce item and most of the drainages were cut by a deep, steep-sided gully.

Thirty-five years of conservative use has changed the scene. If the cowboy were alive today, the knees of his levis would get mighty thin before he had eaten all the grass on "them ridges."

When he homesteaded the place, Johnson realized that it was in poor condition. He had examined the land, however. In the bottoms the soil was deep and fertile. On the ridges there was less soil, but enough to grow native grasses under proper management. The plan was to break up and farm the areas where corn and small grain could be planted. The rest of the land, Johnson reasoned, would take care of itself if it were grazed only in the fall after and before the snow got so deep that the stock had to be moved to his farm at Glendale.

As the years went by this plan proved successful. What had appeared to be dead grass roots began to green up. These first plants were few and far between, low in vigor, producing little or no forage that could be harvested by livestock.

After several years of conservative use, the old plants became more thrifty and new ones showed up. Both new plants and old had to compete with a thick stand of sagebrush. But as the grass increased in vitality, the vigor of the brush declined until it is now actually dying in many places. Even



NOTE.—The author is soil conservationist, Soil Conservation Service, Kanab, Utah.

Much of the seed that Johnson uses on his rangeland comes from seed plots on odd areas on his irrigated farm.



the bottoms of raw gullies are grassed over and lack several feet of being as deep as formerly.

Most of the big herds that used to trail through the area have literally eaten themselves out of existence. Much of the range is fenced and there is less heavy grazing. This has brought about a general improvement of range in this locality, but none of the surrounding land with similar capability will compare with the Johnson place. Blue grama and Galleta are about the only species of grass found in any abundance on adjacent range, either public or private. On Johnson's land these grasses are found intermixed with such species as western and slender wheatgrass, Indian ricegrass, needlegrass, and several species of dropseed.

Although there is an abundance of feed being produced, Johnson makes it a point to leave as much grass on the land as the stock removes. Some stockmen who have seen his range at the end of the grazing season have criticized the "waste" of feed. He patiently explains that the grass left on the ground isn't wasted, but that it helps to maintain soil fertility, catches snow in the winter, reduces soil and moisture loss by preventing runoff and evaporation, and helps to prevent extremes in soil temperature. If the observer still remains unconvinced, Johnson points out that in spite of the fact that he has "wasted" half the grass, his land has fed more cows per acre than similar ranges where all the feed was taken.

Everyone who sees the Johnson range admits that it ranks with the best they have seen, but most of them ask if 35 years isn't a long time to wait. Johnson heartily agrees with them and states that with the grasses that have come out in the past 10 or 15 years it is foolish to wait for depleted ranges to come back. To prove this statement, he can show areas that have been brought back into production in a few years by seeding adapted grasses and legumes where the brush has been removed by burning. The grasses he favors for this area where the elevation is 6,500 feet and the rainfall 16 inches are: smooth brome, orchardgrass, and crested, tall, intermediate and stiffhair wheatgrasses. These grasses have done so well that he plans eventually to put into grass the land that he is now dry farming. Much of the seed that he uses comes from seed plots on odd areas on his irrigated farm.

Johnson has always been a leader in soil and moisture conservation in Kane County. He was one of the first to work out a conservation plan with the Kane County Soil Conservation District. He was chairman of the old AAA committee when it started back in 1936. He has continued in this office or its successors and is the present head of the county ASC committee. He is well liked because he is interested in improving the country, and because he insists upon a dollar's worth of conservation for every dollar paid out.

# Boys' State Studies Conservation

By WILLIS D. MORELAND

IN RECENT years, there has been increased interest in the supervised study of natural resources in our Nebraska schools. We also have found ways to supplement the classroom in teaching young people why and how to conserve our natural resources, particularly our soil and water. One of the new approaches to conservation education was used recently in connection with the American Legion's Boys' State citizenship training program, which was held at the University of Nebraska and attended by over 300 high school boys from every county.

In a study conducted nearly 2 years ago, Cornhusker Boys' State leaders were determined to find a better way to serve the cause of citizenship. It was felt that one of the primary requisites of a good citizen in a democracy is an awareness of basic issues and problems. With this in mind, the Board of Directors of Cornhusker Boys' State decided to incorporate a new activity in the citizenship training program. Thus, a new program, "Nebraska Problems Study" was developed. Its purpose is to give participants at Boys' State an opportunity to make an intensive study of some of the major problems confronting Nebraska.

NOTE.—The author is associate director, Nebraska Citizenship Education Project, Teachers College, University of Nebraska.





Consultants to "State" review reference materials: Leo Geier, A. G. Spohnheimer, Evan A. Hartman, and Willis D. Moreland.

As before, citizenship training is still the nucleus of the total program and is designed to give high school boys realistic concepts of the functions of local and state government. And as usual, the week-long program is culminated by a mock election of boys to political offices where they gain firsthand knowledge of the duties and responsibilities of elected officials in the operation of government.

The major topic chosen for the "problem study" was conservation of the State's soil and water resources. There were several reasons why this topic was selected. First, a survey of the participants at Boys' State indicated that they considered soil conservation to be the most important single problem that needed to be studied. Second, the recent devastating floods along the Missouri and other rivers had made Nebraskans acutely aware of the urgent need for conservation treatment of watersheds. Furthermore, interest was running high in a bill then before the unicameral legislature which would permit the diversion of water from one watershed to another. For these reasons, it seemed that the problem of soil and water conservation would be extremely pertinent for the consideration of Boys' State.

A first step in preparing the "problem study" was the selection of materials to be included in a study packet to be sent to the boys prior to the opening of Boys' State. We tried to include pamphlets and brochures which would represent some of the more important organizations concerned with soil and water conservation. As much as possible, we tried to present a variety of viewpoints regarding soil and water conservation measures.

These materials were distributed approximately a month before the beginning of Boys' State, thus allowing time for study as well as an opportunity to obtain opinions from local people on flood control and soil and water conservation. It is important to note that a high percentage of the Boys' State delegates, as revealed by objective tests upon arrival at the university and later discussions, came to the "problems study" sessions with a good working knowledge of the basic references. They were also capable of reflecting not only their own opinions, but also the views of people from their own communities.

At the conclusion of Boys' State, each participant was requested to donate his reference materials on conservation to his local high school library. This



will provide over 300 high schools of the State with basic materials on conservation for study by future students.

Two afternoon sessions were devoted to discussion of conservation. The Boys' State participants were divided into 12 groups of about 25 boys each. Each group was directed by an experienced high school social studies teacher. The latter—not a specialist in the field of conservation—was chosen for ability to work with boys of this age group and for skill in handling discussions. Discussion was not to involve a technical study of conservation but rather a free exchange of ideas by citizens interested in saving the basic resources of the State. The purpose of the discussion groups was not to indoctrinate the boys in any pre-conceived viewpoint, but rather to provide an atmosphere in which the boys could better understand conservation problems and their solution.

In order that the technical aspects of conservation could be dealt with on the spot, selected resource people were invited to attend. Representatives of the Soil Conservation Service, the University of Nebraska College of Agriculture, and the Salt-Wahoo Watershed Association were present to help the discussion leaders answer questions calling for a more thorough knowledge of erosion, flood control and conservation problems.

The discussion leaders had no prepared outlines, a fact which made for greater independence of thought and permitted a wider range of topics throughout the 12 discussion groups. Some problems arose which were too broad for a lengthy consideration, but even with these the boys gained some new insights.

Some of the more important questions under focus were:

1. How can we enlist the support of everyone in carrying out better land use measures to conserve our soil and water resources?
2. What soil and water conservation measures are needed in our State to decrease the threat of floods and to curb erosion?
3. Should the people of Nebraska support a Missouri Valley Authority?
4. What financial assistance should be given to farmers for establishing permanent soil and water conserving measures?
5. Should the study of conservation be compulsory for all Nebraska high school students?

These and many closely related topics were handled. Almost all of the boys entered into the discussions. Many of them were influenced by the persuasion of other boys.

As a follow-up, the boys prepared legislative bills on various aspects of conservation which were to be introduced in the Boys' State legislature for discussion and action. This led to the weighing of con-



**Jerry Rigg, 1953 governor of Cornhusker Boys' State.**

servation from the legislative point of view, and was a natural and effective culmination of the "problems study."

To summarize: The youth of Nebraska have gained a better understanding of the conservation problems in the State. A number of boys said that this experience gave them for the first time a real understanding of the importance of conserving soil and water resources, and of how these resources are related to the present and future welfare of the State. City youth, as well as rural, went home with a better understanding of the various soil and water conservation practices which could be carried on in their own communities.

The boys were almost unanimous in favoring the required study of conservation in high schools. They were so convinced of the urgent need for conservation that they felt all youth in the State should have an understanding of conservation's fundamentals. They were equally emphatic about the need for keeping control of conservation in local hands, although they felt that it should receive consider-

(Continued on page 239)



# Twenty Farmers Harness

By HERB BODDY

## Unruly Streams



W. G. Scott, SCS technician, stands on gravel deposition in Dry Creek channel running through the farm of Montabane Bros. near Tully road culvert. The apricot orchard at the right was inundated and suffered considerable deposition during the rainy season of 1951-52.

CONSERVATION FARMERS cracked down on the soil-eroding, farm-flooding and crop-busting forays of two of Central Santa Clara County's most wayward channels this summer.

The streams—Silver and Lower Dry Creeks—in the Bay area of California, have long been “bad actors.” Every farmer who has tried to work the soil along their course, knows what a headache they can be. Year after year, they have scoured, gullied and waterlogged large chunks of good farm acreage. Working as a team, the creeks pose a tough hurdle to the development of some 20 farms.

No one knows how long the rampaging channels have been whacking away at the fertile slopes and valley floor lands. Some years the streams merely inch in a little. Other seasons, like those of '51 and '52 when there were damaging winter floods, gave farmers their biggest scare.

They had plenty of reason to worry at such times. A tide of water, heading from the Mt. Hamilton range, swelled Silver Creek, causing water to pour over some 400 acres. And when runoff from the Lower Dry Creek watershed got out of hand, it gave 200 acres of grain and orchardland their worst wetting in a decade.

Even in normal times, a good part of the Silver Creek section of the Santa Clara basin was too wet to till. Most of the farmers who took a chance and sowed crops had them drowned out. The best performers were meadow hay and native pasture. With luck, there could be as many as 4 months of second-class feed.

On the slopes, above the valley floor, orchardists and grain growers had to cope with winter downpours and “flash rains.”

Last winter, for example, runoff brought devas-



tating soil and crop losses to uplanders. Tree roots were laid bare. Silt often piled up to the crotch. Some trees were washed away. Fruit and nut yields dropped. Too much water caused a sharp lowering of soil fertility in some spots. But one of the storm's meanest tricks was to spread a thick gravel blanket over a large piece of good soil. The runoffs of December, January and March were so power-packed, they even skimmed off soil-holding cover crops.

Could Silver Creek be harnessed? Was there a safe way to live with runoff?

The grim group of farmers who met with directors of the Evergreen Soil Conservation District decided to find out. All agreed it was high time to put a stop to the creeks' capers before another winter rolled around.

Glen E. Brown, of the Evergreen district headquarters of the Soil Conservation Service, told the farmers and directors that the drainage job couldn't be done single-handed by one farmer, nor by either the Silver or Dry Creek communities alone. It was the kind of job, he said, that called for cooperative effort on the part of all farmers in the trouble area.

That was the beginning of the first cooperative "group action" soil conservation project in the

Santa Clara Valley. Farmers pitched in to get the drainage work done in accordance with the needs of the land and the principles of sound, comprehensive conservation planning. Soil Conservation Service technicians surveyed the channels and laid out specifications for their deepening and widening. When the farmers got around to figuring expenses, they found the Production and Marketing Administration was in a position to pay more than two-thirds of the overall cost.

Today, the channels are fast changing shape. When the creek-improvement program is complete, farmers hope their water troubles will be over. The first heavy rains will tell.

But farmers like Joe Lopes, a leader in the Silver Creek group, and Jim Carlin and Al Martin, who have led the movement in the Upper Dry Creek area, see better times ahead for the 20 farmers concerned. Lopes anticipates that farmers will make as much as 10 times as much money. Instead of tussocks, cattails and swampgrass, he looks for a swing into profitable new crops like sugar beets, vegetables, and high-grade, irrigated pasture.

Now that word of the Silver and Dry Creek drainage work has got around, some 15 to 20 other farmers are thinking about using the group-action method to settle farm problems common to all.

# Memorial to a Conservationist

By Q. S. PETERSON

"ENTERING DICKINSON SOIL CONSERVATION DISTRICT"—This sign in bold letters greets travelers wherever a main road enters Dickinson County, Mich. The signs are memorials to a man who gave himself unstintingly to a cause which he knew was important to the future well-being of his country—the conservation of its soil.

Dedication of the markers to the memory of Robert Hazelberg was made December 9, 1953, at a meeting in Iron Mountain. All soil conservation district directors in the Upper Peninsula attended, along with SCS technicians and county agents.

This story of Bob begins in the winter of 1947 when the County Land Use Planning Committee

requested the Conservation Institute of Michigan State College to make a survey of erosion taking place in Dickinson County. C. A. Engberg, state soil scientist of the Soil Conservation Service, and George Hurrell, specialist in land use planning, made the survey. To the amazement of everyone, they found that in the short space of 35 years of farming the county had actually lost 25 percent of its topsoil. Farm and city folks alike, realizing that agricultural production is dependent on quantity and quality of topsoil, decided that here was a problem that must be solved and that the best way to solve it was by organizing a soil conservation district. A referendum in the fall of 1948 resulted in a vote of 216 to 1 in favor of the creation of a district.

NOTE.—The author is work unit conservationist, Soil Conservation Service, Iron Mountain, Mich.





**The late Robert Hazelberg.**

Bob Hazelberg was elected to the first board of directors. Other members were Joseph Trepanier, Clarence Blomquist, Harold Anderson and William Nicholson, all local farmers. Bob, a graduate of the University of Wisconsin, was an instructor at the Veterans Institute at Felch and also owned and operated a 160-acre farm at Sagola.

He not only was interested in conservation but also eager to acquire a greater knowledge of how soils, rotations, fertilizers, vegetation and mechanical soil conservation practices fit together to make a sound, economical land use program. He was one of the first to apply to the Dickinson Soil Conservation District for assistance in developing a complete soil and water conservation plan on his own place.

From the very beginning Bob's willingness to devote freely of his time, his enthusiasm, his energy and his firsthand knowledge of conservation problems, contributed tremendously to the successful operation of the district. Being such a likable fel-

low with an honest forthright personality, he inspired confidence among everyone.

He took a leading part in all district activities, including the largest land clearing demonstration this area had ever known. He assisted his neighbors and the veterans in his classes to do conservation farming.

On January 6, 1950, we received the news of Robert Hazelberg's untimely death. Bob and his wife, Virginia, had been living in a small log cabin. Planning on making their permanent home in this north country they loved so well, Bob had been working in off hours building a new and larger house. It was when he was in the forest cutting timbers for their new home that he suffered a fatal heart attack. He was still in his early thirties.

Friends and neighbors got together and completed the home after Bob's death. That's the way folks felt about the Hazelbergs. Then the district directors, Soil Conservation Service and Extension workers in the county gave Virginia \$25 to use as a memorial of her choosing. A few days later they received a letter of appreciation from Virginia telling how Bob had so often talked about soil conservation and how deeply interested he was in it. She could, therefore, think of no more fitting memorial than to turn the money back to the directors to use as they saw fit.

For some time prior to his death, Bob had felt that soil conservation and the work that was being done in districts should be brought to public attention more forcibly. With this in mind, the district directors decided to set aside the money to be used for signs which would proclaim that here are farmers who recognize soil erosion and are doing something about it.

Month by month pennies and dollars were added to the fund. In 1953, through the cooperation of the Marquette Prison, which arranged to build the signs at cost, and the Dickinson County Road Commission, which assisted in erecting them, they were put in place where each State and Federal highway enters the county. Everyone who had even the smallest hand in the project is justifiably proud of the signs and the cause for which they stand. And most of all, they are proud of Robert J. Hazelberg and the imprint he left on this community.

But there are other more permanent memorials; the conservation practices that can be seen throughout the district.







# The Greatest Signboards on Earth

By ROBERT B. BRANSTEAD

**A**CROSS the Great Plains, the fertile valleys of the East, the North and the South, and the irrigated deserts of the West, farmers are painting great signboards of their faith in soil conservation. They are making their drawings with the broad strokes of the plow and disk and coloring them with the greens of growing crops and the yellows of straw mulch. Who will tell you this? Any airline pilot who makes his daily run between here and there in these United States; to him they are the signs of spring and fall just as you or I watch the blossoms or coloring leaves.

But the patterns of conservation may be 'old stuff' to the pilot. It is to the occasional air traveler that the strips and curves are a source of wonder and interest.

"Why are all those fields down there cut up in long parallel strips, and why do all the farmers run their strips in the same direction?"

"Look at that farm, just below the tip of the wing! They must be real snug. That windbreak is on three sides of his buildings."

Such are the comments of fellow passengers when you fly.

The tiny speck of silver with the quiet drone high in the sky contains many pairs of searching eyes. There is little privacy left to the farmers for what he does with his land all can see. You may not be on a regular air route; however, planes vary their flight to catch the favorable winds and will pass over from time to time.

On a round trip flight between the west coast and Washington, D. C. you have an unusual opportunity



**Lovely from the air, these rolling foothills in the coastal range east of the Salinas Valley in California suffer from vast-scale erosion—the result of 400 years of overgrazing by livestock.**

**To the right is a contrast in beauty: An Ohio terrain protected and at peace; stripcrops, a contour motif, with the soil safely anchored under vegetation and trees.**

to see the way America farms. The plane climbs high over Portland, Oreg. and straightens out at 17,000 feet heading east toward Salt Lake City. Below and not so far away, for you are a bare 3 miles in the air, the Columbia River spreads a boundary line between Washington State and Oregon. The intersecting valleys that mark the rugged Cascades disappear and the broad plains of wheat and grassland take their place. Here and there you see strange white breaks in the earth mantle that look just like the seat of a boy's trousers, threadbare from sliding

down too many hills. These spots are sand dunes, small but active, and caused by years of overgrazing.

As you near the wheat country around Pendleton, you see that farmers are beginning to do something about the wind damage with which they are threatened. Strips of grain and fallow are breaking up the broad block patterns of the past.

On into southern Idaho, a land of milk and honey, where glistening canals of water squiggle their way on the contour, bringing water to every little farm and field. Here windbreaks are the most prominent feature from the air. But here and there little white spots can be seen in the dark green of alfalfa or beanfields. These are caused by alkali from the overuse of water.

When the plane leaves the path of the Snake River it flies high over the mountainous country



NOTE.—The author is in the information division, Soil Conservation Service, Washington, D. C.



surrounding the Great Salt Lake, higher still over the Rockies, that rugged spiny extrusion which caused so much delay to western migrations of a century ago; then it drops down in this wildness, to the pleasant city of Denver. Farmers in eastern Colorado take good care of their land. You can say that without ever speaking to one of them or even

away from the flesh. You pick one out and trace its course through a maze of twisting branches. The veins join and get bigger. They become a main channel to be lost from sight under the belly of the plane. You learn later that this is an area of very sandy soil and farmers here are having a tough time holding the land in place.



**All sorts of things are going on here in the southwestern corner of Nebraska: terracing, contour plowing, and you can even make out a series of detention dams on the stream at the bottom of the photo.**

being on the ground. Just look down as you fly. Stripcropping patterns are everywhere, and as the land demands it you will also see terraces or diversions, contour barriers to rapid runoff.

Slowly almost without your being aware of it, the land begins to change. You look down and say to yourself, "What has gone wrong?" The strips are gone. Only a few terraces are to be seen, while in the sharp contrasts of the later afternoon a fine network of veins appear as though the skin had been torn

Now the time zones are catching up with you. It's beginning to get dark. The pattern of the land becomes hazy. Scattered clouds move crazily below like sheep with a dog at their tail. A big city comes into view. From the map you think it is Omaha and ask your seat mate. "Yes" he says, and points out its salient features as though he knew it well. A few minutes further on you see another city this one much bigger than the last. And while you and your friend are puzzling over it the PA system





**The lordly Mount Shasta, symbolic of the snow storage which is of such vital importance to the farmers of many western states.**

starts to squawk. The reassuring voice of the pilot tells you "We are now flying over Kansas City, Missouri. The plane has changed course to gain the speed of more favorable tail winds." Night comes swiftly and you are diverted from watching the twinkling lights by the stewardess taking your order for dinner. The rest of the trip to Washington is made in the dark, while you wonder what lies below.



**Looking down from the clouds at downtown Chicago: great marketing and transportation center, a powerful partner of the agricultural industry.**

The return trip gives you more daylight, 3 hours more. The gleaming white buildings of the Capitol become a pleasant memory in your mind's eye, blending with the dark green of cutover fields and broadleaf forest regrowth. You feel a little nervous because the plane is flying so low. Then you realize that the Alleghenies and the Appalachians, the mountain chains of the Eastern States are much lower than those of the West. Cloud banks which have prevented your seeing the ground begin to dissipate as you travel through Ohio and Indiana. Below are small towns and villages and the railroad winding back and forth. Then you see for the first time those beautiful contour patterns on the hill-sides. Strips curve around the slopes, rows and rows of them. You see drainage ditches in the bottom lands. Everything is green except for the newly plowed soil of a red tint.

Beyond Chicago the clouds once more blot the earth from view. You try to calculate when you are going to pass over the broad Mississippi, but you never do see it. The air clears slowly. Below are fields of corn and as the land becomes more rolling terraces appear. Everyone is using them. Farmers seem to know what is good for their farms. You are traveling a more northerly route this time and you do recognize Omaha when you pass over it. You follow the Platte river—a wide meandering stream. Even from the air you have the feeling that you could wade it without going over your shoe tops. It is filled with sandbars and moves in a wide path over the countryside. Where did the sand come from? You are sure you know.

The plane starts to climb as you leave Denver for Los Angeles. Higher and higher it goes. You know that the mountains are in the 14,000 foot class and wonder if you are ever going to get over the



tops of them, but you do. You go on up to 17 then 19 then even 21,000 feet. Below, the peaks spread out in all directions. Some are snowcapped, others a desolate brown. Off to the south you see a storm darkening the sky and sending down occasional jagged streaks of brilliance. The farmland is gone. The terrain is so rough that you wonder if there is any range useable for cattle. Erosion here is on a grand scale, nature's way of cutting down mountains young in geological time, to build up the more fertile bottom lands of thousands of years hence.

The cliffs of sandstone stand red in the afternoon sun as you pass over the Gunnison, and there straddling the stream is one spot you can recognize, Grand Junction. A green oasis, where border irrigation of alfalfa has made life tenable. As you follow the sun, a few other green spots and an oc-

casional blue lake, a reservoir, stand prominent in the diastrophism of the desert and the mountains. Las Vegas is below you. You can trace the road beyond to the Spring Mountains and make out where Frenchman Flat lies barren and burned from the atomic blasts that made it famous.

There are the San Gabriel Mountains. Then down you slant in a long slow glide through the fabulous Santa Ana River watershed. Orange groves appear to cover every bit of farmable land. Eucalyptus windbreaks stand row after row between the fields. You watch along the sage covered hills to the north remembering the many floods they have poured into homes and farms from San Bernardino to Pasadena. People live and farm on those dangerous alluvial fans.

When you leave Los Angeles on a later morning,



The eye of the conservationist is quick to note the flags of windstripping (upper-center) in this Oregon panorama.





**An interesting pattern of canals in the irrigated farming country of southern Idaho. The area to the right is rugged and impenetrable to the plow.**

you are over familiar country. The coastal hills are below where people have tried to grow beans so far up the slopes that the soil washed out like sugar. The annual rangelands overburdened with sheep and cattle from the times of the Spanish missions are scarred and raw. Then farther north the ocean fog rolls in, pocketing the peaks. A girl in the next seat points to it and asks if it is snow. This is her first plane ride. Over the Central Valley the earth is once more visible. Those curious curving marks down there are rice paddies, "See the dry ones, I hear they have to quit growing it after a few years, ruins the land!" You hear the comment and think wisely to yourself, "Yea, alkali."

Mt. Shasta, that great landmark of California, looms up. Its snow covered peak provides the water for the dam you see below. Water for the West, for irrigation, public consumption, hydro-electric power, and a hundred other uses that keeps the land alive.

Beyond Shasta is Oregon and home. You settle down to watch the fir forests of the Cascades and the green fields of the Willamette Valley. Country that has barely known the plow for a hundred years. As the plane swoops down for a landing in Portland, you think back to the signboards you have seen. They were appearing all over the nation. Some you had to know about to see; others were obvious even to the city folk. Some told a story of strength, others of weakness, but altogether they showed a

progress toward soil conservation that has come as swiftly as the day of modern air travel.

### **LET US BE PROUD**

(Continued from page 219)

that grass must not be burned and soil left bare. And when that fire is out, those farmers who make up my community's fire-fighting organization have the satisfaction of knowing that men who learn to cooperate to save their land can work together in all that is good and desirable. Again, democracy at work in my Soil Conservation District.

Our Nation does not, perhaps, value its farmers highly enough. But, perhaps, that is because we who live and work on farms do not value ourselves highly enough. Perhaps it is time we should become proud. Proud that from our farms is coming the food that is strengthening democracy around the world. Proud that from our farms have always come most of our Nation's leaders. Proud that we farmers are strong enough and honest enough to admit our past mistakes in the treatment of our soil. But most of all, proud that, in our hearts, we can hear those minute men of 1775 say to us, "Well done! We fought and died to secure this land and to found this democracy. You, in 1954, are fighting as great a battle, to preserve this same land and to strengthen this same democracy. Be proud that you are doing these things in a truly American way, a democratic way."



## *Friendly Hands Across the Sea*

THERE are many interesting magazines in the American Library at Salonica, Greece, but in the opinion of Elli Papadoupoulou, a 16-year-old high school girl, SOIL CONSERVATION Magazine is the best of all.

Browsing in the library, she saw a story in the March 1953 issue of SOIL CONSERVATION Magazine titled, "Junior High School Goes To Camp." The story and pictures of students of the Greenville, S. C., Junior High School studying conservation intrigued her very much.

So Elli wrote a letter to Miss Cena McCurry, the teacher whose picture appeared with a group of students studying how soil is formed from the weathering of rock. And as a result, all the students in her seventh grade class wrote letters to Elli. Many letters have passed between Elli and the students since then and Elli hopes the correspondence will go on "forever."

In her first letter last April, Elli said:  
"Dear Miss McCurry:

"My letter undoubtedly will cause you a lot of surprise in its arrival, as it is addressed to you from an unknown student.

"Before I continue my letter, I should like to ask of you to forgive me as I dared to write to you.

"I was so happy to find your address as I was reading an American magazine which is called SOIL CONSERVATION.

"And now I know you will ask me where I found this magazine so far away from his country. Well, dear Miss Cena, here in Salonica there is the American Library where every one of the Greeks can go to read many kinds of American magazines: *Life*, *Post*, *American*, *Boys' Life*, *American Girl*, *Time*, *Newsweek*, and so on.



Elli Papadoupoulou.



"Well, I am one of the American Library too and every day when I have spare time, I enjoy it . . . Believe me that the only magazine I like best is the SOIL CONSERVATION, and every month when arrive the new one I read it with listen.

"Yesterday as I was looking at this magazine I was surprised to read the article, 'Junior High School Goes To Camp.' I saw your picture around your nice looking students and that made me to be sure that you are a useful teacher who helps very much your students.

"Believe me that I was happy and glad to read that article. Please tell your lovely students that they must be happy of having such a good teacher who do always the best for them.

"By the way, I must introduce you now myself. I am a girl of 16 years old. I am also a student in high school . . ."

Imagine Elli's surprise when she got letters

from all the boys and girls in the seventh grade class. She could not answer them individually, so she wrote a letter to them all:

"My Best Friends Boys and Girls:

"Your wonderful letters I was received yesterday and really yesterday was the most happiest day I have ever seen.

"I read all your letters line by line and a few of them I read over and over again.

"It was so nice of you to write me and believe me that I appreciate this very much.

"Our postman was so surprised to bring at our house so many letters and today when I met him he said to me, 'Elli, you must be proud of having so many friends in the U. S. A.' . . ."

The original article which served as a link of friendship between Elli and the American students was prepared by J. W. Burdette, then of the Soil Conservation Service and stationed at Spartanburg, S. C.

# Lancaster Banks Its Water

By JOE B. EARLE

**L**ANCASTER COUNTY, S. C., has twice as many farm ponds as any other county in the State. There are 26 ponds within one square mile in one part of the county.

Five hundred and sixty-five ponds were completed by cooperators with the Lancaster Soil Conservation District as of June 30, 1953. During last July, August, September and October, 106 more ponds were surveyed by SCS technicians in the county. Eighty-five of these ponds were completed at the end of October.

Olin Helms, a cooperator with the Lancaster Soil Conservation District, produced 185 bushels of corn per acre in 1951 by irrigating with water from his pond. A recent picture of a lad holding a string

of fish that reached from his shoulder to the ground, caught in Helms' pond, is good proof that the water is used to provide food and fun as well as irrigation. (Also, it does nicely as a front cover.)

John E. Nisbet, technician, says, "The first pond surveyed by SCS men here was completed in 1942. Interest increased slowly at first but lately by leaps and bounds."

Ponds in this county vary from 1/10 acre in size to 25 acres. All are stocked with bream and bass by the U. S. Fish and Wildlife Service or by the South Carolina Resources Department.

In South Carolina 3,571 farm ponds have been built by district cooperators. Interest is increasing, as indicated by the fact that about a third of the total, 1,067, were built in 1952.

NOTE.—The author is area conservationist, Soil Conservation Service, Chester, S. C.



Farmers have learned to use grass, trees, stubble mulching, contour cultivation and other conservation measures to stop as much water as they can where it falls and store an additional amount in farm ponds for use in irrigation, stock watering, fish production, fire protection, for storing veneer logs, to provide water for spraying agricultural crops and other uses.

Pines and pastures are two of the most important practices in Lancaster County for protecting the watersheds of their farm ponds. Orders for pine seedlings have been placed by cooperators with the

Lancaster district for 1,095,000 trees for the planting season of 1953-54. These seedlings will be furnished by the State Commission of Forestry.

Cooperators with the district have also seeded 13,385 acres of permanent pastures.

Farmers and the general public are more and more recognizing that pure water is one of Nature's most precious gifts. Water can be either beneficial or destructive, depending on its use and management. Cooperators with the Lancaster Soil Conservation District in South Carolina are setting an example in managing water for maximum beneficial use.

## State's Youngest District Takes Top Laurels

THE best way to hold the soil in place and to store rainfall in the ground, in the Upper Cheyenne River Soil Conservation District in Wyoming, is to grow more and better native grass per arid acre. Good management of native range won first place in the Goodyear Tire and Rubber Co. conservation contest, as well as first place in the Casper *Tribune-Herald's* second annual soil conservation achievement program.

Wyoming's champion soil conservation district is run by District Supervisors Frank L. Kane, chairman, of Gillette; Jin Sherwin, of Douglas; Jack Downs, of Douglas; W. A. Stoddard, of Bill; and Harvey J. Nachtman, of Douglas. The District scored 2,375 points out of a possible 3,000 in judging by three standards—administration, district conservation, and the score on three selected farms or ranches.

Efforts of the supervisors in this newest (18 months) of Wyoming districts contributed greatly to the winning score. There are 1,137,200 acres in the district, of which 630,000 acres are already under agreement by 30 cooperators. Kane states the goal of the district as 85 percent participation by the end of the year. He remarks, "This is a big area.

We are dealing with a lot of big cattle and sheep outfits." He notes that both large and small ranches are active in the district program.

Victor Nachtman, a district cooperator engaged in intensive range improvement programs for commercial and pure bred Herefords, emerged with top individual honors. His volume of forage for grazing is being increased each year through a water-spreading program. The systems direct water from small natural drainages and reservoir spillways to low ridges and adjacent areas. Thus, the water is absorbed by the soils before getting back into the draws where it does not benefit forage production. Victor is not one to regard everything green as "grass." He knows his native grasses by name and by growth requirements and manages his grazing accordingly.

The application of conservation through management of grazing is far less spectacular to the uninitiated observer than conservation applied by means of earth-moving equipment and by installation of concrete and steel structures. Range conservation through management of grazing shows largely through the presence of two blades of grass where one grew before, or the presence of two blades of a climax native grass where two blades of an invading grass or weed grew before. And, the latter may not

NOTE.—The authors are range conservationist and work unit conservationist, respectively, Soil Conservation Service, Douglas, Wyo.





**Winning supervisors:** Seated—Victor J. and Lawrence L. Nachtman, Lee Moore; standing—Frank L. Kane, Jim Sherwin, Jack D. Downs, W. A. Stoddard, and Harvey J. Nachtman.

be very evident from the highway. Yet it is the cheapest and surest way to cash in on what the climate and soils of range country have to offer. More and bigger kinds of grasses reestablish themselves under conservation ranching. That means more of the ground covered, more water soaking into the ground, deeper roots to pump it back out, and more forage being produced while they are pumping. More forage means more cover, and, of course, less erosion and cheaper meat.

Victor and Lawrence Nachtman, first and second place winners, are applying long-time plans toward the day when range conservation will be evident on all their native pastures. They do this by stocking their ranches in balance with the forage and feed supplies that the ranch can produce. Adjustment between pastures takes time. Proper distribution within a pasture often presents knotty problems. They know that native forage plants need about half of the leaf surface left during the growing sea-

**By DON DAVIS and BUD F. A. SVALBERG**

---

*Management of native grasses builds up the range. Water-spreading, control of livestock numbers, and other measures increase yields of forage.*

---



son to store food in the roots for the next year's start. They know that it takes green shoots above ground to manufacture the food necessary for roots to grow and reach deep soil moisture. They have learned that some unused forage is not waste on the range, but instead, makes the big rains soak into the ground. For the Nachtmans and other conservation ranchers, a lot of range conservation boils down to "taking half and leaving half." Invariably, the ranges respond with a bigger half to be grazed.

In addition to stocking the pastures so that half the annual production is left, these men follow a practice of resting each of their native pastures every third or fourth growing season. This gives the taller, higher-producing forage plants a chance to grow tall, set seed, and "outcompete" the shorter, lower-producing species, and annuals that are always present. Lawrence Nachtman points out, "When you rest a pasture, it is necessary to remove all of the livestock during the resting period. Otherwise, the draws and areas close to water get used by the few head you might have left in the pasture. That kind of pasture resting doesn't do you much good because the parts that needed the rest the most won't get it."

On Victor's main winter pasture many slopes are steep, and shallow soils and raw shales are common. Heavy rains falling on these soils of limited ability to store moisture causes runoff to collect in draws and cut deep gullies. He said, "I couldn't afford to build enough dams to stop the gullying, but as a result of resting the pasture in summer and leaving some grass after winter grazing, the gullies are losing their steep banks and starting to heal."

Jack Downs, third-place winner, puts it this way: "This is a dry country and we need all the moisture that falls for growing grass. Once in the draws, the runoff water does more damage than good." Jack has built 18 small spreader dams on his Box Creek range to dispense runoff water where it will grow grass instead of rip on down the channel. "Without this spreader system, I would have had to buy all my winter roughage," he said.

These experiences are indicative of the ways that conservation pays, even in low rainfall areas. Here, ranchers and technicians, busy making conservation plans, talk mostly about grasses and livestock numbers, and when to graze various parts of the ranch with various classes of livestock. It takes careful planning to be sure each bunch will have adequate pasturage and roughage 12 months in the year.

**BIRD'S EYE LOOK AT CONSERVATION.**—Last fall our Grant County (S. Dak.) Soil Conservation District sponsored a conservation air tour. Joining in sponsorship were the Milbank Kiwanis Club and the Milbank Squadron of the Civil Air Patrol assisted by the Soil Conservation Service and the county agent.

The district laid out and listed the practices they wanted the people to see as well as some places where work was needed. *Numbers were put on the fields over the route flown; they were 20 feet high by 4 feet wide and made from lime.*

The Kiwanis Club took care of advertising, printing of tickets, publicity, seating, public address system, insurance and the signing of waivers.

The Civil Air Patrol took charge of flying, handling the crowd at the airport, parking cars, loading and unloading passengers and safety measures at the airport.

Before the actual tour, the people were taken into the hangar and given a briefing. On a map 8 feet high and 18 feet long the route was drawn and the farms numbered.

More than 80 percent of the passengers had never taken a plane ride before. Between 300 and 400 people were at the airport and about 100 persons were taken on half-hour flights. Expenses totaled \$227 for gas and oil, insurance, and miscellaneous items.

—JOHN C. NELSON

#### **MODERN CONCEPT OF FLOOD PREVENTION.**

—"We have long recognized that flood prevention must begin on the upper watershed where the rain falls and the snow melts.

"Let us not presume, however, that upper watershed treatment is the full answer to the Nation's flood problem. Instead, it is the logical beginning.

"Reduction of flood damages, the greater part of which consist of agricultural losses on the upper watersheds, must of necessity involve downstream improvements. These include such works of improvement as larger reservoirs, levees, dredging and other forms of channel improvement.

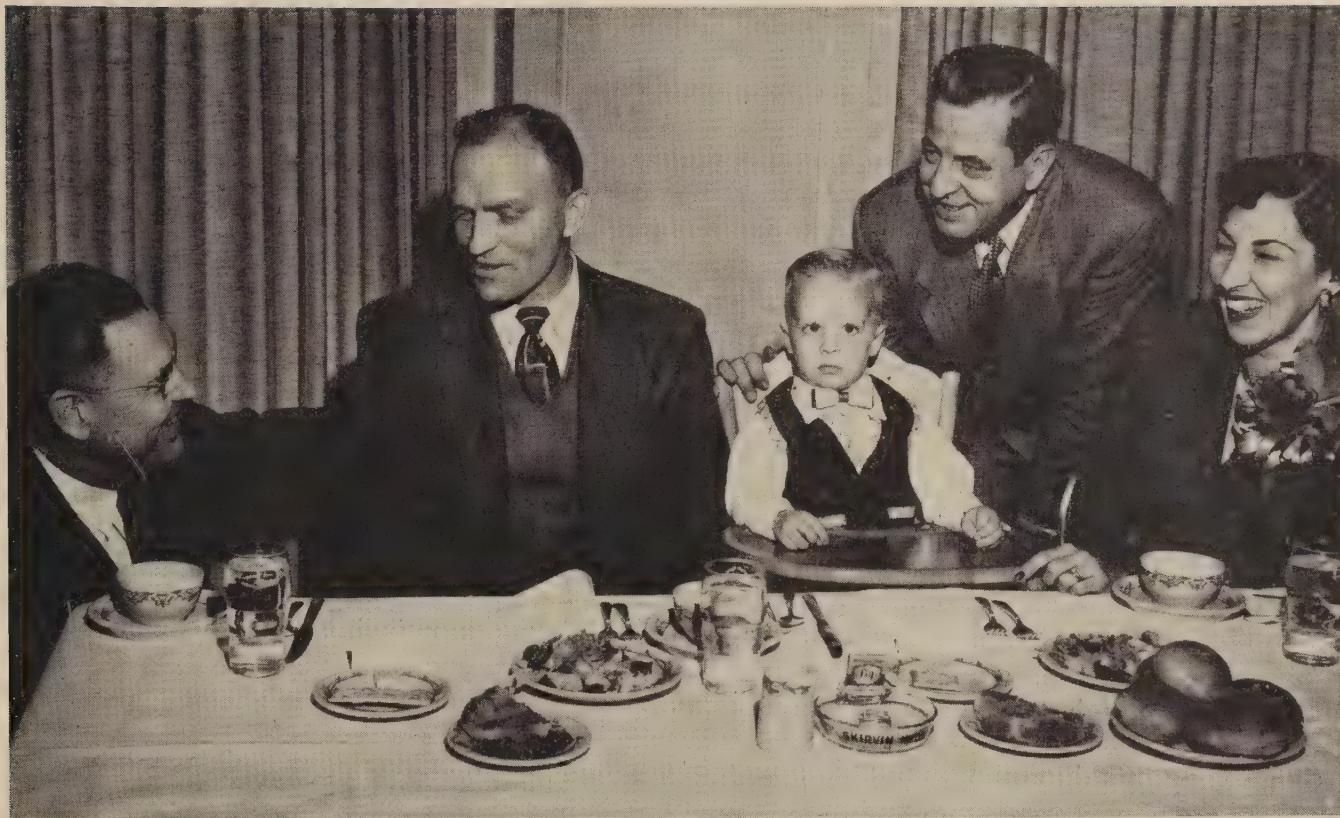
"But upstream programs are a necessary part of the entire picture. Such programs can reduce the volume of water pouring out into the main stream channels and in many instances can prolong the life of downstream reservoirs by reducing the amount of silt flowing into them.

"The success of any flood prevention program is dependent entirely upon teamwork. The program must have the wholehearted support and leadership of local people; of local and State agencies.

"For that reason the Department of Agriculture has believed it important to make local sponsorship the first condition of approval for such projects."

—DONALD A. WILLIAMS





Happy occasion: Dean Darlow, Sandy Saunders, his son, Lynn; Governor Murray, Mrs. Saunders.

**SANDY SAUNDERS HONORED.**—Oklahoma farmers a few weeks ago reversed the procedure and told WKY, WKY-TV farm director Sandy Saunders' story to the State via a special telecast from the surprise "recognition" luncheon given for him in Oklahoma City. Sandy has made outstanding contributions to soil and water conservation over many years.

The luncheon was such a well kept secret that Sandy, who's been telling the farmer's story on WKY since 1946, thought he was going to a business meeting until he walked through the door to face two television cameras, his family, Governor and Mrs. Murray, and a banquet room filled with the leading farmers of the State, all gathered there to give him the State's recognition of his fine work.

Among those present besides the Governor and Mrs. Murray were the toastmaster, Dr. Al Darlow, dean of the school of agriculture at Oklahoma A & M; Pat Johnson and Jimmy Brown of Oklahoma County, representing the 4-H Clubs; Charley Mae Fincher, Poteau, representing the Future Homemakers of America; Bart Boronsen, Perry, from the State's Future Farmers of America; Mrs. O. G. Rushing, Shawnee, farm women's clubs; Dale McClain, Elk City, who spoke for the farmers, plus 70 other representatives of farm and industry in Oklahoma.

Then, in a remote telecast from the luncheon, carried on Sandy's "Oklahoma Farmer" show on WKY-TV, Ed Lemmons, director of agricultural information at A & M and Sandy's boss at WKY from 1946-49, narrated, in a take-off

on "This Is Your Life," Sandy's story as photographs of his life were flashed on the TV screen.

After his life story was told, Governor Murray presented Sandy a scroll signed by those present "because of our love for you and the fine work you have done."

Thus a grateful State saluted Sandy Saunders.

## BOYS' STATE

(Continued from page 224)

able support from the various levels of government. Opinion was almost equally divided as to the desirability of a compulsory conservation program. Those who objected to compelling local people to practice conservation felt that an intense program of education would be a better approach. They were in favor of establishing the study of conservation at all age levels, from kindergarten to adult programs.

Leaders of the University of Nebraska Citizenship Project and Cornhusker Boys' State believe that this program for youth is an important educational move to help people become increasingly aware of Nebraska's urgent need for soil and water conservation. The program's enthusiastic reception by the directors of Boys' State, the discussion leaders and the boys themselves points to its becoming an increasingly important part of the Boys' State program in Nebraska.





**Club contestants use a level to determine grade of field.**

**CLUB MAKES FAST START.**—Young 4-H Club members in the schools of Douglas County, Nev., formed a Soil and Water Conservation Club, which in its first year, 1953—

1. Successfully completed Nevada's first 4-H Club soil and water conservation project.
2. Saw two of its members, Ernest Johnson and Arnold Settlemyer, distinguish themselves in the 1953 Firestone Tire & Rubber Company Contest by winning all-expense trips to the 32nd National 4-H Club Congress in Chicago.

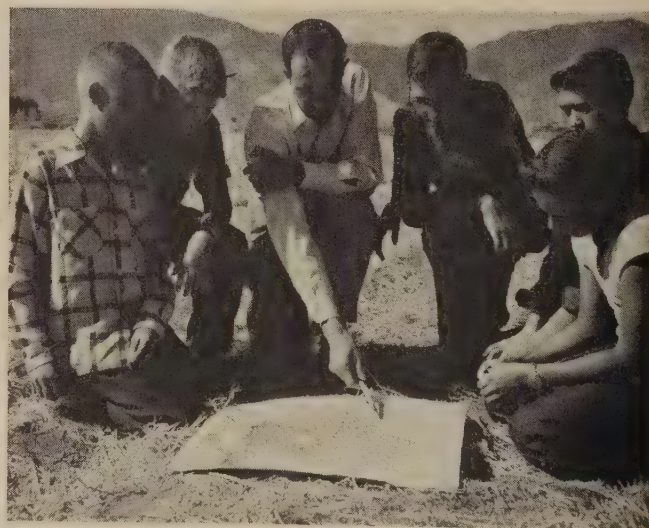
Sponsors of the club are Douglas County Extension Service, Carson Valley Soil Conservation District, and Gardnerville office of the Soil Conservation Service. Project leaders were Raymond C. Cox, extension agent, and the late H. Bruce Shaw, soil conservationist.

Shaw and Cox helped the boys work out complete conservation plans for their home farms.

Club members Richard Fox, Carl Spahn, Stephen Hansen, Graham Hollister, Jr., Johnson and Settlemyer went over their farms acre by acre, and completed conservation plans which were identical in design with those laid out by thousands of adult farmers over the country.

Members attended 10 conservation study meetings and took several field trips.

With the help of the SCS soil scientist and engineer, each boy made a soils and topographic map of his farm. The county agent assisted in planning seedbeds, crop rotations, proper management of pastures, fertilizers, and soil amendments.



**Club members learn how to read aerial map. Raymond C. Cox, extension agent, is their mentor.**

Each contest entrant completed a scientifically sound plan for conserving the land and water resources of his farm, one acceptable to his parents and the supervisors of the Carson Valley Soil Conservation District.

Ernest Johnson and Arnold Settlemyer took Douglas County honors among club entries, and then went on to win top State and sectional awards in the National 4-H Soil and Water Conservation Awards Program.

—HERB BODDY





**JUNE 1954**

**SOIL CONSERVATION**  
OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE



# SOIL CONSERVATION•

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SECRETARY OF AGRICULTURE

ROBERT M. SALTER  
CHIEF, SOIL CONSERVATION SERVICE

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WELLINGTON BRINK  
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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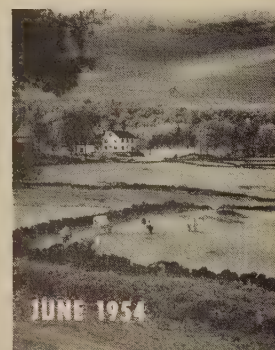
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**GRAZING LANDS, ALSO.**—Recently enacted legislation amends the State law to provide for the inclusion of range-lands in soil conservation districts in the State of Arizona. In the original law, enacted in 1941, activity of districts was limited, essentially to farmlands. Surveys and investigations can now be made by appropriate agencies, which will provide a physical inventory and other information needed as prerequisites to farm planning and the application of various practices. Districts are now able to carry on demonstrations and develop a range program of reseeding and eradication of noxious growths. This will also make it possible for SCS technicians and ranchers to work together in considering range conditions, forage utilization and other factors affecting soil and water conservation on range-lands.

**AWARD WINNER STEPS UP.**—The conservation award winner for Middlesex County, L. Roy Hawes of Sudbury, has been appointed Commissioner of Agriculture in Massachusetts by Governor Herter.



**FRONT COVER.**—“Far from the madding crowd’s ignoble strife” on the Frank Kimball farm, in Merrimack County, N. H. This gentle scene is authentic and unretouched, from the camera of Gordon S. Smith. It sets a proper theme for a magazine devoted to the good stewardship of soil and water.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.



# Drought Damage On Southwestern Ranges

*Here is the hard truth about range conditions: an important article by one of our most widely respected authorities. Once again, sound conservation proves its worth.*

By B. W. ALLRED

**S**OIL in the Southwest has dried out deeper during this drought than at any other time since the white man has lived there.

The hot sun has blistered the whole Southwest but the country in the Rio Grande Plains, western Edwards Plateau, Trans-Pecos and southern High Plains was cooked to a deep brown.

This drought is the longest in recorded history. It has been the most damaging of all to both livestock and grass. In the hardest hit areas up to 90 percent of the livestock were sold or shipped to grass several hundred miles away. Many ranches have been without livestock for 2 years. Some operators have retained part of their choice breeding stock and shipped in hay and concentrates to keep them alive.

Drought has lasted 3 to 4 years in the hardest hit areas. Rainfall has been below normal for 3 additional years around Dryden, Sheffield and Del Rio, Tex. This makes a total of 7 droughty years for these localities. This period equals in duration the 7-year drought in the days of Joseph of Egypt, the longest of Biblical record.

The weather was so dry at Uvalde, Tex., that liveoak trees over 300 years old died for lack of water. Many young trees died too. Drought killed post oak, blackjack and Spanish oak in the Texas hill country. A lot of cedar, shinnery oak and mesquite died in the Edwards Plateau. Guajillo, mesquite and black brush suffered considerably in the Rio Grande Plains. Tarbush and mesquite took a licking in the Trans-Pecos.

Note.—The author is soil conservationist, farm and ranch planning branch, Soil Conservation Service, Washington, D. C.



Too many cows and too little grass result in loss of many animals. Here is a cow starving on an overgrazed range in Starr County, Tex.

Brush and tree survival will be higher than expected, however, and much that apparently is dead will root-sprout as soon as rains replenish soil moisture. A lot of grass died too but, fortunately, enough good grass was left to restore the range provided safe grazing is practiced.

Anything that damages the Southwest's grazing resources hurts business because such a large part of the country is suited only to grazing.

In Texas alone there are over 102 million acres of native grassland plus 4 million acres of tame pasture, over 7 million acres of piney woods and nearly 7 million acres in the East Texas post oak belt which are grazed. In Oklahoma nearly 20 million acres are grazed. Over 75 percent of this acreage is not suitable for



farming; hence, grazing will probably always be its highest use. If it weren't for livestock grazing in this vast area, very little wealth would be produced from it.

Rangemen in the Soil Conservation Service have made surveys of drought damage to range plants in Oklahoma and Texas. Checks were made only where late summer or early fall rains in 1953 provided sufficient moisture to revive the remaining live plants. The following summary gives a general review of the findings:

1. All grazing land, whether grazed or not, had some plants killed. It requires about 400 or 500 pounds of water to produce 1 pound of dry grass. Droughty ranges provided too little moisture to let all the plants live and reproduce.

2. Ranges that had a lot of the better grasses on them before the drought are coming out of it with enough live grass to restock the ranges with good kinds of grass.

3. Considerable grass and better forbs or non-grassy herbs survived in brush where animals have been unable to graze.

4. Area without brush lost proportionately more grass than brushy ranges except where light grazing was practiced. One exception is on sandy shinnery oak ranges at Cheyenne, Okla.

5. Ranges that have had moderate grazing are resurrecting faster than those on which heavy grazing had been practiced.

6. Moderately grazed ranges are getting well about as fast as those in comparable condition but which had not been grazed for several years.

7. Vegetation on rocky ranges survived better than on hard land. This is due to two main reasons. The better and deeper rooted grasses lasted longer on rocky ranges because moisture conditions are better there than on hard land. Grazing usually is heavier on hard lands because they are smoother and more easily reached by the livestock. The taller grasses are grazed out first and are replaced by buffalograss and curly mesquite, which are killed easily by drought. Runoff from rain is greatest from poorly covered hard lands. Also moisture from rain does not penetrate very deep into hard land soils, hence evaporation is

high. Little water is available for plant growth under such conditions.

8. All plants survived best on the better managed ranges.

Generally the taller and more deeply rooted grasses survived the best. These plants are called *decreasers*. They are the first to go out under heavy use. However, they survive and produce normally under correct grazing use. Death losses on this group of grasses ran 5 to 30 percent. Some of these are side-oats grama, bluestems of all kinds, green sprangletop and vine mesquite.

We have another group of grasses, called *increasers*, which suffered more from drought than the decreasers. They are called increasers because under heavy grazing in normal times they replace decreasers until grazing becomes abnormally heavy, then they too are thinned out or become replaced by inferior plants. Drought losses on this group ran from 25 to 90 percent. Some of these grasses are tobosa, buffalograss, curly mesquite, three-awn or needlegrass and hairy grama.

When the grazing becomes heavy enough to thin out this group of grasses they are replaced by lower-order grasses called *invaders*. These are short rooted and death losses during the drought ran from 35 to 95 percent. Some of these invaders are red grama, red lovegrass, hairy triodia, Wright's three-awn, burrograss and the annual weeds.

A check on grass seedlings indicates the following to date:

1. Seedlings from the taller grasses are still scarce. Generally there are fewer of the taller grasses left to produce seed. The exceptions to this are cane and silver bluestem, both of

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### Pictures Opposite

Top: Thrifty stand of buffelgrass on W. B. Osborn ranch north of Rio Grande City, Tex. Planted in fall of 1951, growth of grass was slow in 1952 and early 1953 because of drought. This picture was made in November last year, and grass shown was produced on rain that fell in July.

Center: Grasses made seed on short rainfall in 1953 on East ranch, Monte Mucho Soil Conservation District. Ranges is in fair condition and improving. Better grasses that made seed are tanglehead, plains bristlegrass, cottontop, and cane bluestem.

Bottom: Tall bristlegrass and fourflower trichloris on moderately stocked and brush-cleared range, Osborn ranch, November 1953.









Killam ranch range cleared of brush and covered with trichloris, plains bristlegrass and other good grasses. Once the brush is removed and the range rested, native grasses reseed voluntarily and restock with good grazing plants.

which produce a great many feathery seeds which are blown considerable distances from mother plants. The seeds germinate readily and seedlings are hardy.

2. Buffalograss and curly mesquite are making a quick come-back from stolons, the vine-like stems that aid their spread. Some seed of these two grasses also have sprouted new plants. Three-awn is making a rapid comeback from seed. As many as 5 to 50 seedling per square foot were counted on some rocky sites. Tobosa is thickening up fast from short root-stocks.

Where good rains have fallen repeatedly, there is a rash of grass and weed invaders showing up. Among these are red grama, burro-grass, red lovegrass, hairy triodia, Wright's three-awn and annual weeds, including poisonous bitterweed.

The foregoing gives a preliminary indication of how well range plants have withstood the drought. It will be 2 or 3 years before an accurate appraisal can be made. For one thing, a lot of country has had too little rain to give plants an opportunity to revive. Also, there are many sickly buds that may not revive before 1 to 3 years have passed.

Before the drought it was estimated that 10 to 12 million acres of rangeland needed to have seed planted on them in order to restore their productivity. We are afraid that the present drought has added another 3 or 4 million acres to that unfortunate condition. The rate of grass loss during this drought has been the heaviest in man's history.

Drought experiences of southwest ranchers show that *ranches on which sound conservation has been practiced have suffered less hardship than those without conservation*. Ranches where conservation has been practiced lost comparatively less grass, livestock lived better, and the income was considerably greater. For example, the income benefits in favor of conservation ranching is borne out in a study comparing cattle production on 9 ranches in the Starr County (Tex.) Soil Conservation District at the beginning of the drought. Four of the ranches practiced conservation and five did not. These figures were for 1947-1950.

Item	Without Conser- vation Five Ranches	With Conser- vation Four Ranches
Acres per cow	17	44
Land investment per cow	\$340	\$880
Cattle investment per cow	\$170	\$175
Total investment per cow	\$510	\$1,055
Average weight, per calf, pounds	350	410
Beef produced per acre, pounds	6.4	6.2
Beef produced per cow, pounds	110	273
Value of beef produced per cow	\$27.50	\$68.25
Gross returns per \$100 invested in land and cattle	\$ 5.37	\$ 6.45
Gross value of beef produced	\$15,837	\$50,020
Labor and management earnings, per ranch	— \$ 1,409	\$11,225
Amount earned per hour	— \$ 0.21	\$ 1.28

Note: — The following evaluations were placed on the items under consideration: land, \$20 per acre; cows, \$150 per head; bulls, \$250 per head; calves, 25 cents per pound.

(Continued on page 248)





Grass planting trial on baked hard-pan range, Tornillo Flat in the Big Bend National Park. This is within the Big Bend Soil Conservation District. The crusted soil was broken with a range-pitting machine on part of the land. Pitted areas caught and held rainfall that germinated seed of annual and perennial grasses. Revegetation program failed on bare areas which held no water for grasses to drink.



Excellent growth of plains bristlegrass, trichloris and Arizona cottontop on mesquite-cleared range on Killam ranch near Laredo, Tex. Brush was chopped in September 1953 and range has been rested in summer and grazed during the winter since then.



Several significant facts are apparent:

1. On the ranches that practiced conservation, the amount of money invested in land was over  $2\frac{1}{2}$  times the other. However, the labor and management earnings averaged \$11,225 for the conservation ranches, but there was a minus \$1,409 per ranch on the ones without conservation.

Elias Guerrero, work unit conservationist in the district, says the reason the ranches with conservation made the most money was due to the following:

1. Cattle had plenty of cheap grass to eat; they stayed in good condition and produced much better calf crops than the others.

2. Cost of supplemental feed was several times less.

3. Plant cover was better, less water ran off or evaporated and more moisture remained in the ground to grow grass.

Guerrero reports that the same ratio of benefit resulting from conservation ranching versus ranching without conservation has carried right on through the drought to the present.

# Telling The Story

By ROY E. BALLARD

THE Board of Directors of the Tehachapi (Calif.) Soil Conservation District are telling the story of soil and water conservation.

For one thing, it made sure that people saw the conservation measures established in the district. It arranged a tour for the businessmen of Tehachapi. Some of the group stopped in a field of Akaroa orchardgrass planted and irrigated in contour grade rows on the Jacobsen Brothers ranch just south of town. Others paused at the edge of a field of Narragansett alfalfa planted and irrigated on contour grades.

Note.—The author is work unit conservationist, Soil Conservation Service, Tehachapi, Calif.

Another device was to use signs calling attention to the district and its work. They are of two types: (1) district and (2) individual ranch. Some of them were placed where the east and west boundaries, respectively, crossed U. S. Highway 466.

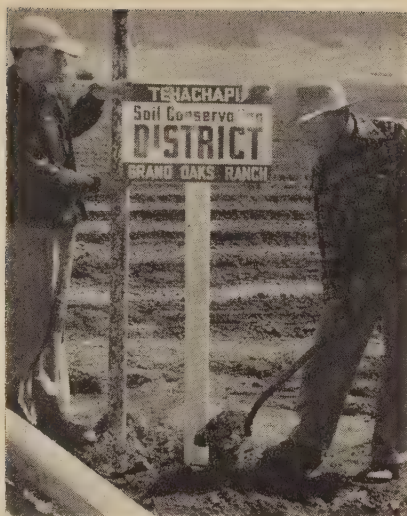
Many individual ranchers were encouraged to erect signs on their property. For example, Don I. Carroll, owner of the Grand Oaks Ranch, put a marker where one boundary of a field of Atlantic alfalfa was conterminous with a road boundary. The seed alfalfa had been planted on ground previously dressed with a land leveler. Another sign was set at the edge of a field of Akaroa orchardgrass which was planted and irrigated in contour grade furrows. This was on the ranch of J. C. Jacobsen, Jr.

Conservation workers from outside the district were guests on a conducted tour to a number of ranches where conservation measures were established. One stop was made at the common boundary of two adjoining fields: In one Narragansett alfalfa was planted, cultivated and irrigated on contour; in the other was Merion bluegrass. All cultural operations were on contour. A halt also was made where a field was being protected from wind and water erosion by a vegetative covering of Goar's tall fescue grown for seed.

The importance of printed material was not overlooked. A 1-year's subscription to SOIL CONSERVATION MAGAZINE, was provided each rancher in the district and to the businessmen in the city of Tehachapi. That move was made to acquaint them with the national scope of conservation work. In addition, a copy of "Down the River," a publication issued by the Soil Conservation Society of America was distributed to schools, ranchers and businessmen. Moreover, a number of key publications of the Soil Conservation Service were put to work. The annual report of the Board of Directors of the Tehachapi district was published and given good distribution. Residents of the district were reminded by use of postals of the time, date and place of the various meetings held by the Board of Directors.

In telling the story, advantage was taken of visual aids such as conservation films and color slides. Believing that children should be schooled on conservation of natural resources,





Signpost of progress.

the Board of Directors cooperated in every way possible to bring about such training. The teaching aids library of the office of the superintendent of Kern County schools contains over 30 conservation motion pictures such as, "The River" and "Stormwaters," together with a number of film strips and slides pertaining to conservation. Two of the films were made available by the Soil Conservation Service. The Board of Directors mailed a card to the schools in the district calling attention to the conservation films and slides, and encouraging their use.

A number of color slides have been made showing conservation work in the district. They tell an impressive story. They covered conditions before conservation measures are applied, their application and the results. The schools were not alone in benefiting from such visual aids. Others who saw the slides were Boy Scouts, Grange, churches, and ranchers.

The *Tehachapi News* and the *Mojave Desert News*, local newspapers, were supplied with usable material each week, each article in the series confining itself to a project on an individual ranch. It showed the problem and how it was solved. They dealt with windbreaks, vegetated waterways, stream-channel improvement, land leveling, contour-grade irrigation, and a number of other practices. Feature articles were published in *SOIL CONSERVATION*, *California Farmer*, *The California Soil Conservationist* and other publications.



Conservation workers, guests on tour, view a planting of Goar's tall fescue.

The story was also told by displays of 8 x 10 pictures, fully captioned, depicting conservation practices established on the local ranches. The Board of Directors have voted to go farther with this means of telling the story by constructing small bulletin boards on which to make such displays, and by locating them in windows of various business places where they will catch the attention of the public.

By the means explained above and others, the Board of Directors of the Tehachapi Soil Conservation District have accepted the responsibility of telling the story of conservation to the residents of the district.

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**HOW PRACTICES SPREAD.**—Satisfied customers sometimes slip in as pinch hitters in the promotion of soil and water conservation.

When his farm was planned 2 years ago, J. B. Bernard of Franklin County, Va., didn't care much for stripcropping. Bernard recently, however, began to show some interest in strips and Lloyd E. Wray, a conservation aid, suggested that they go to the farm of Walter Woody, another cooperator, and see some strips on the ground.

Woody really did a bang up job in explaining his strips and sodded waterways, with the result that Bernard now plans to establish 100 acres of strips and 8 acres of meadow outlets in one field. The strips are being staked, marked, and set up in a 3 year-rotation. This will be the largest field of stripcropping in the county.

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**DISTRICT STATISTICS.**—There were 2,586 organized districts in the 48 states, Hawaii, Alaska and the Caribbean area, as of January 1, 1954. Twelve states, the Virgin Islands, and Puerto Rico are completely covered by districts; Connecticut being the twelfth state to be completely covered.



# Managed Water

## Brings Good Times

*Sprinkler irrigation and drainage, where needed, lead to quick production increases in Washington's Pend Oreille Soil Conservation District.*

By HERBERT F. GAINES

OF some 900,000 acres in the Pend Oreille County, only 33,000 were under cultivation and 102,000 acres were in pasture.

The cultivated land was shallow, droughty, glacial soil which had been subjected to from 20 to 60 years of grain and hay. Although actual soil erosion was at a minimum, the land was suffering from soil depletion, mineral and chemical starvation, and severe leaching. The 22.59 inches of annual precipitation came mostly as snow during the non-growing season.

This was the situation in 1949, when Alex Weinstein, V. P. Campbell, Harold Richards, Paul Meir and Charles Hoisington held their first meeting as a board of soil conservation district supervisors. Fifty-five percent of the farmers had to supplement their income from the land by work in the mines, the mills, or around town. On forty-one percent of the farms less than 20 acres were in cultivation each year. Two courses were open to them: They could clear more land or they could produce more from the land they had.

The supervisors invoked the help of the Soil Conservation Service.

In the few years since then, more than half of the 500 farmers have signed up with the district for assistance; 5,100 acres have been seeded to new and improved varieties of grasses and legumes; 4 dikes and 5 farm ponds have been constructed; 22½ miles of drainage ditches have been dug, benefiting some 2,870 acres; 46 new sprinkler irrigation systems

have brought new life and productivity to more than 3,500 acres. Besides all this, the district has promoted contour farming, crop rotation, uniform grazing practices, woodland management, fertilizing, seed development and other conservation practices through their cooperation with the SCS, Forest Service, and other State and Federal agencies.

The district maintains a bulldozer, a drill, a packer, a ditcher, a grader and a heavy breaking plow which are available at low rental rates to cooperators. It employs Matt Jermain to operate the "dozer" and manage the equipment. Matt is considered an expert at clearing land, ditching swampy peatlands, and building dams and dikes.

Increased value from sprinkler irrigation systems has been estimated at \$195,000, with a net increased production profit of \$120,000. Increased value of drained lands (at \$25 per acre) is \$70,000, and added production brings another \$42,000 profit. Total increased gain for one year: \$427,000. These figures omit the benefits from all of the other conservation practices, and most important of all, they omit the fact that the soil building efforts of Pend Oreille farmers will assure their sons and grandsons an opportunity for the future.

Although about 4,000 acres of new land has been cleared, most of it has been set aside for pasture. Thus, the same land is being cultivated today as in previous years. A measuring stick for the progress made in soil building might be the figures from a grain-shipping point, showing the number of carloads shipped during various years: 1947-17 carloads; 1952-55 carloads; 1953-75 carloads. This grain came

Note.—The author is work unit conservationist, Soil Conservation Service, Newport, Wash.





Bill Curdy's sprinkler irrigation system is typical of the Pend Oreille country. Without irrigation this droughty Class IV soil would produce only three-fourths ton of hay per acre, and but one cutting with irrigation, the yield runs around 5 tons per acre.

from land that not too far back was producing only 500 pounds of wild hay to the acre, and when in grain only one-fourth ton of oats.

Applying the findings of USDA circular No. 891 to the sawmill-dotted Pend Oreille district, many interesting experiments have been carried out in the use of sawdust on farmland to increase water absorption, aid in mulching, and provide nutrition to the soil. Farmers have found that a great deal of nitrogen fertilizer is required to break down the sawdust, but that the condition of the topsoil is improved in the process. We have an unlimited supply of sawdust and we want to make use of it if we possibly can on our peculiar Pend Oreille soil.

Irrigation has produced perhaps the most easily measured dollars-and-cents benefit to the farmers of this district. The average dryland hay yield is  $1\frac{1}{2}$  tons per acre. Irrigation has increased the number of cuttings from 1 to 3, and annual yields up to 7 tons per acre in some cases. Flood irrigation is used wherever possible because of lower installation costs, but in these hills sprinkler irrigation actually is much preferred. It is more versatile, uses about half as much water, and virtually eliminates soil washing and erosion. Proof of their success is indicated by the last report from the regional office of Farmers Home Administration which shows that there have been no delinquent loans on sprinkler irrigation systems.

Here's what some of our farmers say:

Stan Daugherty—"Irrigation increased my oat yield by half a ton per acre, doubled my alfalfa yield, and increased my pasture carrying capacity from 10 to 30 cows."

Lee Wood—"I have been able to support 30 head of yearlings and cows on 8 irrigated acres of rotated pasture. My sprinkler cost \$90 per acre and was paid off in 1 year. Two families make a living on 80 acres of my irrigated land."

A. M. Driver—"Best crop yet, by one-half, with irrigation."

Bruce Campbell—"Irrigation has increased my wheat yield by 12 bushels."

Ted Schwab—"I paid for my sprinklers from increased yields in 2 years."

Keith Pennell—"My regular yield of  $\frac{3}{4}$  tons of oats per acre jumped to  $2\frac{1}{2}$  tons with irrigation."

Much of this increased value from drainage, and especially from the widespread acceptance of sprinkler irrigation, is directly due to the efforts of Ed. White, Soil Conservation Service engineering aid for the district.

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**CATO HAD THE IDEA.**—Some of the new fungicides used to control crop diseases and important to every conservation farmer may not be so "new" after all, according to Earl Wade, University of Wisconsin plant disease specialist. In fact some of them were being used over 2,000 years ago.



ONE day some years ago Harry Post had a vision of green pastures in place of the big areas of idle river bottom land he had seen in southern Louisiana.

Post resigned from the Federal Housing Administration and borrowed \$700 on his life insurance and \$2,500 more from his father. Then he leased some of the idle land in St. Charles Parish.

Now, 13 years later, the vision has taken on shape and substance. Alone or in partnership with others, Post controls 66 square miles of once idle land in 5 parishes. He runs 2,300 head of cattle on the lush, year round pastures that he has made out of weedy and brush-burdened land.

"Even at today's low cattle prices, you can make an adequate profit from an operation like ours," Post says.

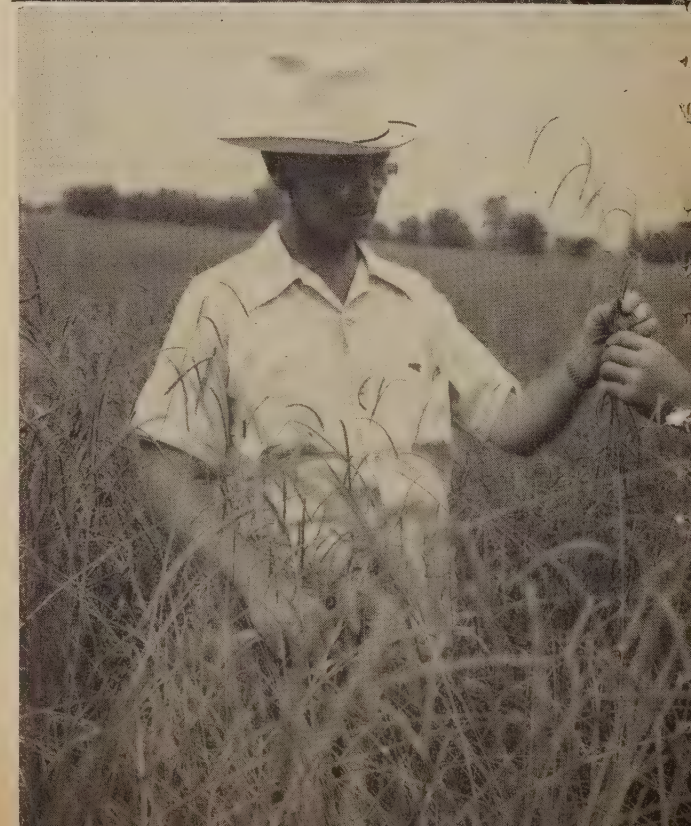
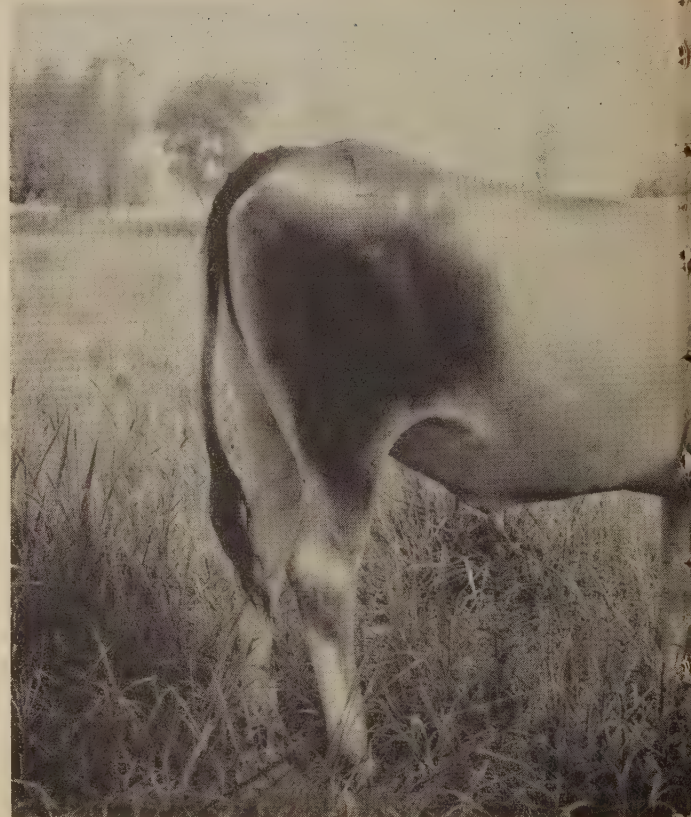
Post has fared well and so have his landlords, for their fields have been made productive once more.

Most of all, the land has benefited from the conservation treatment Post has given it. His program includes clearing the brush and thickets with a bulldozer, seeding grass and clover wherever necessary to get a stand established quickly for grazing, installing properly-engineered drainage systems, clipping pastures regularly to control weeds, and keeping the cattle herd small enough to prevent damage to pastures through overuse.

"Abandonment of this good bottom land around 1930 shows how badly we needed to know about the conservation of our soil and water resources," Post says. "If we had put

# 66 Square Miles

By LE



## THE PICTURES

**Top, left:** This 18-months-old cow is a Brown Swiss Brahman cross. She is in a pasture of Dallis and bermudagrass and white Dutch clover. The pasture is clipped regularly to keep weeds controlled.

**Top right:** Mowing hay on the Post-Pizzolato operation in St. Charles Parish.

**Bottom, left:** Harry Post and Stafford A. Thiobodeaux (SCS) inspect heads of Dallis grass, 4 feet high and loaded with seed.

**Bottom, right:** Post shows how gentle are his registered Brahman cows. He uses grade cows and registered Brahman bulls to make quick veal. A herd of registered Brahman cows furnishes replacement bulls.



# es of Pastures

ER FOX

these conservation practices on the land a generation ago, agriculture in Louisiana would be a different story today."

When it becomes necessary to graze more cattle on a given piece of land, Post says he will also add fertilizers to his conservation program.





"Right now," he explains, "when I have plenty of land I'd rather put that money into clearing, turtleback plowing and weed control. But where land is limited, fertilizing is necessary to get the greatest amount of high quality grazing."

Post gets multiple use from his pastures. In addition to year round grazing, he harvests crops of grass and cloverseed and cuts 50,000 bales of hay a year.

"With grazing the year-round, we use little hay ourselves," Post says. "We feed a little in the spring when the clover is most succulent, to prevent bloat. We never feed anything else. Most of the hay we sell."

Typical of Post's operations is a 150-acre pasture of Dallis and bermudagrass, and white Dutch and red clovers. Cattle graze the pasture all winter until March, when they are taken off to let a crop of cloverseed mature. The seed is combined in May, this harvest also producing half a ton of hay an acre. The cattle are then put back on the pasture until mid-June when they are taken off to let a hay crop develop. Hay is cut in August, and again in late October. Each cutting produces 2 tons or more per acre, so that altogether the pasture yields 4½ tons or more of hay per acre in addition to the grazing and seed crop.

Post gets year-round grazing this way: in the winter and spring, he has pastures of white Dutch and red clovers and fescue and rye grasses; in the summer and fall he has Dallis and bermudagrasses. Of course, there is overlapping of these plants.

With this top quality, year-round grazing, the cattle are always in excellent condition. Their calf crop averages a high percentage.

Post uses grade cows of various breeds and mixed breeds with registered Brahman bulls. "The Brahman bull produces a quick veal calf," Post explains. "I sell the calves in New Orleans, which is noted for its veal." Post markets them at 4 or 5 months, when they average 300 to 400 pounds.

Post also keeps a small herd of registered Brahman cows to produce replacement bulls.

Much of the land leased by Post was handicapped in the past by excess water. Some of it could not be used much of the time even for pasture. Post has solved this problem with modern drainage systems designed by Soil Con-

servation Service engineers. In a number of cases, for example, he has divided the field into plots about 100 feet wide, and "turtlebacked" each. That is, he plows each plot in such a way that it slopes gently to each side from a high point in the center, resembling old-fashioned "crowned" highways. The water drains to the sides into V-shaped ditches. These ditches carry the water to lateral ditches which take it on to main ditches that remove it from the field altogether.

An operation the size of Post's requires a lot of labor and automotive equipment. Post and Jack Pizzolato of Hahnville, a partner in some of the operations, have 7 rotary mowers used exclusively for controlling weeds; 6 cycle mowers for cutting hay; 10 tractors; 2 combines for harvesting seed crops; 2 hay balers; 2 baled hay loaders; 2 hay trailer trucks; a cattle truck and trailer-truck; 3 pick-up trucks for general farm use; and a bulldozer for clearing brushland to establish pastures. In addition they have a wide assortment of plows, disks, harrows, drags, seeders and cultipackers. Their own repair shop maintains the equipment.

Post did not get into this business blindly. He had a background in agriculture and a thorough knowledge of land values. He was well aware of the work and risks involved.

Post studied agriculture at the University of California and at Southwestern, Lafayette, La. After being graduated from Southwestern in 1932, he taught school and did 4-H Club work at Rayne until 1935. He then went to New Orleans to work for the Louisiana Rural Rehabilitation Corporation. After 3½ years he became land appraiser for the farm section of the Federal Housing Administration for Louisiana, Alabama and Mississippi. This was the job he gave up to get into the pasture-cattle business.

Half a dozen years ago Post became interested in soil conservation at a farm in New Orleans.

"I began probing around and found out that the whole State was organized into soil conservation districts excepting the six southeastern parishes around New Orleans," Post recalls. "Then I got in touch with the Soil Conservation Service and Parish Agent A. J. Melancon to see if we couldn't set the wheels of progress in



motion to get a soil conservation district organized for this part of the State."

After a lot of preliminary work by Melancon and Post, an election was held on June 4, 1949 and the landowners voted in favor of establishing the Crescent Soil Conservation District. There was not a dissenting vote.

The Crescent district is composed of Jefferson, St Charles, St. Bernard and St. John the Baptist Parishes. Like all soil conservation districts, it is a sub-division of State government that is run by the farmers operating in the district.

Post was elected one of the five supervisors. When the supervisors held their first organization meeting on June 28, 1949, they elected him chairman of the board, a position he has held ever since.

Post owns a 558-acre pasture plantation in St. James Parish that is supervised largely by C. W. Paugespack. Recently he leased 20,000 acres in St. James, St. John the Baptist and Lafourche parishes which he is now organizing to stock with cattle. This is mostly wooded land for winter grazing. He also leases 1,000 acres of open pastures and 10,000 acres of marsh and wooded land for winter grazing in St. Charles Parish.

With his father-in-law, T. S. Landry, Post leases 300 acres of open pastures and 700 acres of woodland for winter use in Jefferson Parish. This is part of the old Willswood Plantation. They have 300 head of cattle on these pastures. Landry supervises this operation.

The equipment is pooled for all operations and the haying is done for the benefit of all.

Post has been cooperating with the Crescent Soil Conservation District since its organization. As a district cooperator he receives technical help from SCS in planning and applying his coordinated soil conservation program. He makes his headquarters at Luling.

Despite his widespread pasture operations and his varied agricultural activities, Post finds time to serve in various civic and community capacities. A member of the Jefferson Parish Sheriff's Mounted Posse, he takes great pride in riding his palomino horse with this group in the Mardi Gras parade in New Orleans every year.

# Raise Your Own Gopher Traps

By J. W. GARLINGHOUSE



Four friends peer out the rounded opening of their home.

**D**O you ever speculate on what more you could do to control the pocket gophers which often interfere with farming operations and certain conservation practices? You set traps, distribute poison, own a prolific cat and still you wonder if perhaps you are not actually running a gopher farm after all.

Arthur H. Anthony, avocado grower of Fallbrook, Calif., felt this way about his farm before he started helping nature to help him control the rodents. Now he is raising his own gopher traps in the form of barn owls by providing them with especially designed shelters in which they rear their young. With the assistance that the owls give him, Anthony no longer is in doubt what to do about the rodents.

The plan to raise his own gopher traps was first conceived by Anthony several years ago when a pair of owls raised a brood in his barn. Their activities convinced him of their value in gopher control. It took several years, however,

Note.—The author is work unit conservationist, Soil Conservation Service, Fallbrook, Calif.





Owls seem to favor this style of house.

of observing the owls and constructing various types of shelters for them before there was any noticeable increase in the owl population. Preventing wild bees from appropriating the owl houses was one of the problems that had to be solved.

The location and design of owl houses are important. Each pair of owls requires about 10 acres of hunting ground, and an aggressive pair will drive all others out of its territory. Placing the houses a minimum of 500 feet apart in all directions proved satisfactory. Design

of an owl house has much to do with preventing bees from occupying it, but bees will move into a house from which the owls have been driven. Best results are obtained if a hollow log, at least 4 feet long and 18 inches in inside diameter, is placed horizontally on a pole 10 or more feet from the ground. Old power poles or telephone poles are ideal supports. The hollow log is firmly fastened to the top of the pole and one end is boarded up. The other end is left open. The owls will nest as far back in the log as they can, the open end will not attract bees, since bees seem to prefer a small opening leading into a larger chamber.

Anthony also discovered it is best to locate the houses in isolated spots. Owls are timid and do not appreciate human company. They will claim newly constructed houses that are located away from frequently traveled farm roads or other busy areas of the farm. Isolated fence corners or locations within the orchard proved best. It is also advantageous to place the house near to trees or other shelter in which the adults can roost during the day. The important thing is to allow about 10 acres of hunting area per pair.

At night both parents hunt for food to feed their young. Small rodents seem to be the main diet. The parents of one brood were observed arriving with a freshly caught rodent on the average of every 20 minutes.

Owls are remarkably good housekeepers. The bones, uneaten pelts and droppings are removed from the nest and can be found on the ground below the nest. Also beneath the nest are the owl's disgorged pellets of undigested bones and hair. By examining this material it is easy to learn what the owls have been eating.

One of Anthony's owl houses was erected on January 10, 1953. It was first observed to be occupied on March 7 and on June 15 it contained four young barn owls. On the latter date the droppings beneath the nest were carefully screened and sorted. All the animal skulls were counted and it was found that the owls had eaten the following kinds and numbers of animals:

Gophers .....	94
Mice .....	89
Kangaroo rats .....	27



Moles .....	7
Ground squirrels .....	4
Brush rabbits .....	3
Unidentified mammals .....	17

It should be noted that no bird or fowl remains were found in the droppings. Domestic chicken and ducks, with spring hatchings, run loose in the Anthony barnyard and in his neighbors barnyards and orchards, but the owl have not preyed upon them.

Anthony has 10 occupied owl houses in his 65-acre avocado grove. Some of them are located along the property boundary so the owls also range upon his neighbors' lands. All of the houses have debris piles as large or larger than the one described. The skulls of gophers are most numerous under all nests. It pays to raise your own gopher traps in the form of barn owls and anyone can do it by following Anthony's example.

## Wins Top Prize

By EDGAR F. BAUMANN

**B**Y winning first prize for an exhibit at both the Blanco Valley Fair and the Kendall County Fair in south-central Texas, the Lindendale conservation group of the Pedernales Soil Conservation District proved again that cooperating farmers are in full charge of their own affairs.

Members of the group and supervisors of the district handled all matters pertaining to their participation in the fairs. They sought no help from Soil Conservation Service technicians or employees of other governmental agencies.

Victor Wenmohs, chairman of the district, praised the Lindendale and other participating groups for assuming full responsibilities. In earlier years of soil conservation districts, he pointed out, there was

natural dependence on experienced technicians. Now, however, the district supervisors exercise their own authority on a broad scope, and cooperating farmers and groups work out details.

"When the public," Wenmohs says, "assumes its responsibility of promoting soil and water conservation and when landowners everywhere practice conservation as a matter of course, then and only then will we supervisors feel that satisfactory progress has been made."

Since it first came together in October 1951, the Lindendale conservation group has met once a month. The group has a barbecue each spring and holds six to eight special meetings a year. Some of these meetings are held on the ground itself, studying soil conservation. Technicians serving the Pedernales district meet with the group at soil conservation meetings and on tours.

Soil conservation ranks first in interest and projects. Valentine Rose, a group member, and his son have for 3 years been collecting and mounting native grasses for study. About 50 different grasses are now in their collection. They constituted part of the exhibit.

Ellis Love, another member of the group, produces seed for conservation crops such as hubam clover, *Melilotus indica*, and alfalfa. In 1953 he harvested 2,100 pounds of hubam clover seed, 6,000 pounds of *Melilotus indica*, and 6,000 pounds of Sudan and hegari seed.

Group members not only practice conservation on their own farms and ranches, but also believe in showing their neighbors why soil conserva-



Note.—The author is work unit conservationist, Soil Conservation Service, Johnson City, Tex.



tion pays. This desire to help others and to promote conservation is why the group made soil conservation its exhibit theme.

Love frequently takes pictures of conservation. He has a large collection of color slides illustrating conservation practices carried out in the group, which he has shown at meetings of civic clubs.

Two other members of the group, Morris Lee Moore and Orvin Weber were on a team in 1952 in the Hill County judging contest. Their team took first place and received 50 pounds of buffelgrass seed as prize. As a result, there are now several fields of buffelgrass in the Lindendale area.

The group protects wildlife as part of its work.

Practically all of the group's cropland is terraced and farmed on contour. Cover crops

have been planted on nearly all cultivated land and the residue is worked into the topsoil to provide additional organic matter. Much remains to be done in range improvement, however, as prolonged drought upset the group's earlier plans. Even so, some in the group have held their stock numbers at reasonable levels and have managed the stock in such a way that they have been able to defer some pastures and reduce the grazing load on others. This has resulted in improvement in the grasses even though moisture conditions have been unfavorable.

Members of the group, in addition to those already mentioned, are B. G. Hale, Emil Kuebel, J. W. Dechert, E. R. Page, Joe P. Weber, Alfred Wilke, Charlie Whitworth, Richard Love, Fritz Kuebel, Bill Blackburn, George Grenwelge, and Arthur Dechert.

## One Needed Practice Led the Way

By HUGH F. EAMES



Here are the supervisors behind the Caroline County district's drive: Chris Nagel, Fredericksburg; Harold K. Shults, Marydel; Harry H. Reick, Preston, chairman; Willie S. Carroll, Ridgely, vice chairman; and William Engerman, Denton, Treasurer.

**F**IRST things come first in the Caroline (Md.) Soil Conservation District. This fact largely accounts for the district's 11 years of high accomplishments, of which 800 cooperating farmers are exceedingly proud.

More than 90 percent of the county's farms were suffering from lack of drainage in varying degrees. Therefore, removal of excess

water from upland became the No. 1 job, and the district consistently hammered at it. As a result, it has accomplished what no other organization there had been able to do.

By helping them make better use of their land, the district has encouraged its farmers to lift their sights. District farmers are raising their economic status by steadily increasing their productive output.

The district has brought many community benefits. The county commissioners point to the 3,000-acre increase in cropland and the heightened harvests, which have raised valuations and broadened the tax base. They also note the improved drainage which has made for better highways and lower cost of upkeep.

These things are important to Caroline County and its people because agriculture is the dominant industry. More than 80 percent of the total land area is in 1,570 farms. Agriculture production brought more than 10 million dollars in 1950. This was a jump from \$6,300,000 in 1945, and \$2,400,000 in 1940, a





Neglect of maintenance put this Caroline County main drainage ditch out of service. Silt, grass, weeds, and other growth had to be cleared out—and before that, the banks had to be made accessible for heavy equipment.

couple of years before the district began to operate.

Struggling with excess water has been a long time affair in Caroline County. Tax ditches, designed to give farmers main outlets into which they could dump excess water and move it safely into natural waterways, were dug as early as 1826. The passing years brought long periods without any organized activity, broken now and then, as in 1880-90 and again in 1905-10, with sudden but short-lived spurts of trying to lick the problem and keep it licked.

Between 1925 and 1940 many miles of tile were laid, but records of these drainage systems have been lost and no accurate estimate of the amount of tile laid can be made. The best *guesstimate* is that about 10,000 acres of cropland had been drained. This is based on the presence of tile lines unearthed in excavations for outlet ditches.

The drainage problem was under attack in 1935, when the Goldsboro CCC drainage camp put new life into the fight. By March 1942, when the Caroline Soil Conservation District started work where CCC efforts had ceased, 34 tax ditch organizations were in good standing under the state's 1941 drainage law. At that time 14 ditches had been excavated by CCC, 3 were partly completed and 13 were untouched. In the 14 completed jobs, 109 miles of ditching area had been cleared, 3 million square yards of brush and timber had been removed from embankments, 84 miles of ditch had been excavated, 818 thousand cubic yards of earth had been moved, 99 thousand cubic yards of soil bank had been leveled, and 575 farms had been benefited.

In presenting its soil and water conservation program and plan of work to farmers, the district undertook two classes of drainage activity: (1) work with groups in opening and building general outlets, and (2) work with individual farmers in building on-farm drainage systems and connecting them with the general outlets.



Effective carrier of excess water from Caroline croplands. This main ditch, cleared of obstructions, serves well the district program.





Before leveling spoil bank. This ditch on Norman Glimes farm is one of the tributaries to the Noble Brown main outlet. Glimes says ditching returned about 100 acres to cultivation. J. P. Kennard, a neighbor, grew more corn in one field the first year after ditching than in 15 years previously.

In general outlet work, as of July 1 last, the district completed 22 group jobs at a total cost of \$68,535.64. This work has benefited 14,752 acres in 232 farms. Excavation of nearly 700,000 cubic yards of earth, clearing of 227 acres for ditches, and construction of 19 structures are included in this array.

As of mid-1953, there were 30 legally constituted tax ditch organizations in Caroline County, and 8 more were being planned under soil conservation district leadership. The number of farms benefited by individual ditches ranged from 2 to 70, with length of these ditches running from 616 feet to 16.2 miles. The cost of the separate ditches had been as little as \$382.48 and as much as \$45,553. Farmers' share in the cost of these two examples had been \$66.75 and \$13,806, respectively. In tax ditch operations farmers pay about one-third of the cost and the county pays the balance. A tax ditch rarely does the whole drainage job for any farm. Usually additional on-farm work is necessary, and all of this is at the farmer's expense.

Extensive as it has been, drainage work represents only part of the accomplishments of the Caroline Soil Conservation District. As the supervisors foresaw at the outset, many other conservation practices depend on getting drainage work done first. For that reason, establishment of many common practices has not been as conspicuous as those pertaining to drainage, yet they too have been picking up

steadily. Total establishments in some of these major practices, as of July 1 last, included the following:

- 16,743 acres cover cropping
- 14,952 acres rotations
- 19,218 acres woodland improvement
- 3,300 acres pasture improvement
- 990 acres clearing, obstruction removal
- 524 acres perennial hay
- 101 acres reforestation

A complete soil survey is another highly important achievement under the soil conservation district program. The survey was started in 1942 and by 1944 the whole land area in the county—almost 205,000 acres—had been covered. This means that a land capability map is immediately available for every acre of land in the county. As a reliable land use base, it is valuable in many activities other than agriculture; for instance, in land valuations, assessments, industrial locations, and so on.

Countywide acceptance of the district and its program is seen in the steady annual increase in number of cooperating farmers. In the first 6 months 35 asked for help and 22 became cooperators. Thirty-five were added in 1943, 84 in 1944, 146 in 1945, and 114 in 1946, to make the 5-year total reach 401. In the next 5 years, at the end of 1951, the total jumped to 715. Forty-three more were added in 1952, and this year the number comes to more than 800.

In the drainage program, Northwest Prong, Griffith tax ditch, in the Federalsburg area, is a good example of what a drainage system means to farmers. It was started in 1942, then put off until 1947, and was completed in 1950. It benefits 3,085 acres, 2,000 in cropland, in 55 farms. The main ditch and tributaries are 11.1 miles long. The job cost \$39,447 of which farmers paid \$12,000.

Willie F. Bailey tells you that "every farmer along its course has gotten a lot of good out of the job." On Bailey's 113 acres, where he lives in retirement, he has seen land that was unproductive as far back as 1926 become an abundant producer in 1951 and since. Before ditching it was "good only as a place to run cattle." Ditching has put this land on its feet and let it go back to work. Bailey has recovered the use of about 10 acres. Only 2 or 3 small wet spots are left and these are disappearing.



Before this ditch was built, says Charles Seipp, county storekeeper, almost every farmer in the area annually lost crops, sometimes worth \$1,000 or more, because they "lay in water." Occasionally only part of a crop was lost, but usually there was complete failure in one or more fields. He recalls a small-scale farmer who was approached with hesitancy by a ditching committee, because it was feared that the \$1,000 that he would be required to spend in a ditching system would be too much for his resources. This farmer studied the plan briefly, then pointed over his fields and gave this answer: "There's \$1,000 worth of beans out there that I couldn't harvest last year because it was too wet. I need the ditching and I'll go along." This kind of spirit, demonstrated so often in tax ditch and district meetings at his general store, brought the big ditch and its connecting on-farm laterals to Federalsburg.

Carl Regan's drainage job cost him \$200. He wouldn't sell it now for \$2,000, he said the other day. After he had completed his on-farm connections, it took him 3 years to rebuild his soil. In barley, a crop that he had never been able to produce, he now harvests 40 bushels per acre. Where he planted corn and was lucky to harvest a bushel per acre, he's now getting 60 to 70 bushels. Soybean output likewise has soared

from "maybe one" to 30 and 35 bushels per acre. There never is flooding at his farm.

Virgil Andrew has spent a lifetime on Federalsburg area farms. Annually, in pre-district years, he lost 6 to 10 acres of crops because of poor drainage. Now he is getting excellent yields of corn, soybeans and tomatoes. Any crop will grow anywhere and come into good harvest. He's been on his farm since 1931. Before ditching, farming was a sideline, a week-end and evening job. The rest of his time went to carpentering. Now, with 56 tillable acres, farming is a full-time job.

When L. W. Meredith bought his farm 3 years ago, 30 acres were good but the 50 remaining acres of cropland was so poor that he was told he was "wasting money and would go busted." Meredith bought because he knew a drainage job was being set up. He saw his wheat and rye down, however, before he got connections. Now he's making full use of his land and collecting profits; tilling acres that had not produced a crop in 10 years, and getting 75 to 80 bushels per acre of corn there. The county average is 42. Before ditching, 28 inches of water stood in the cellar of the farmhouse. In threshing times this storage was drawn on to feed the engine. The cellar has been dry since the ditches began to function.



Part of on-farm drainage system on Claude Howard, Jr. place; hooked to main outlet. Grain yields paid for job in 3 years.



Roland McMahan has been farming 150 acres, 100 in cropland, for 18 years. He spent about \$1,000 to get his drainage system established and says, "I wouldn't trade the investment for \$4,000." He figures the system has added a third to the value of his farm. "Where water used to stand half way up to my knees in April, I plowed last year. Without ditching, I would have been waiting in May for the field to dry out so I could start plowing, he comments. *In 1953 he cropped land that had not been plowed in 33 years. Over all, this field was the driest that it had been in 50 years, yet spring in '53 was a wet season in Federalsburg area.*

Christian Nagel, with half a century in farming, is operating a 280-acre home farm, with 70 acres in cropland. Here is a good example of how drainage pulls a no-good farm out of the water and heads it into a productive enterprise. A lot of crop failures, due to excess water, left the former owner on a spot where he couldn't pay his taxes and had to lose his farm. Nagel took over, put the place under a complete conservation plan with the Caroline Soil Conservation District, established an outlet and on-farm drainage, made the best use of his land, and put other good practices to work. As a result, he paid for the place in less than 2 years. Corn production has jumped from 20 to 100 bushels per acre, wheat has gone from 10 to 25 bushels per acre, and soybeans likewise are soaring. *"There has been a 50 percent improvement in production straight across the boards," Chris Nagel says.* He figures the total value of the farm has increased tenfold.

That's why he now has 3 farms under complete conservation plans with the Caroline Soil Conservation District, which he serves as a director. His 4 sons are operating under similar plans. In general farming operations Chris features broilers and dairy products.

In looking over countywide accomplishments under the Soil Conservation District program, with drainage as the first big objective, Chris Nagel says: "Not much, if any, of the work would have been done if the district had not been here to lead the way and lend a helping hand." He's particularly pleased with the way farmers are snapping into their new opportunities. He has a special interest in

maintenance of general outlet and on-farm ditches; notes that they need attention every 2 or 3 years, and is encouraged by movements now under way to make sure that this upkeep is done systematically and that their condition never reverts to another period of neglect and abandonment.

Getting all general outlet and on-farm ditching work done as quickly as possible is very important in Caroline County. It means as much in every other area as it does in Federalsburg. The whole country benefits when all farmers, like Willie Bailey, can have their "best years" on their land, because their drainage headaches are cured.



**MORRILL MOVES ON, SETTLE ARRIVES.**—A. H. Settle (right) recently became director for the Soil Conservation Districts Awards Program for the Goodyear Tire and Rubber Company, Inc. He succeeds A. G. Morrill (left) who was director of this program for 3 years. Under the direction of Morrill, this program grew from one covering a limited area of the United States until last year, for the first time, all States were included. Morrill will be associated with foreign tire sales for the Goodyear company. Settle previously had been employed by the company in its sales organization.

The 1954-55 Goodyear Awards Program has been announced and is essentially the same as that for 1953-54. The program is conducted for soil conservation districts and emphasizes their activities as well as their achievements in soil and water conservation. During the past year's contest, about 60 percent of all conservation districts took part.

The Goodyear company entertains 50 district supervisors and 50 soil conservation district cooperators who are State award winners with a free vacation trip to Goodyear Farms in Litchfield Park, Ariz., in December.



# Teamwork in Conservation

By A. M. HEDGE

TEAMWORK in conservation is a theme that is being given renewed emphasis throughout the Department of Agriculture. Secretary Benson, in his address at the eighth annual convention of the National Association of Soil Conservation Districts in New Orleans this year said: "We believe that a dynamic national program of research, education, technical assistance, and where needed, cost sharing in soil and water conservation is one of the basic necessities of American agriculture. It is the policy and firm intention of the Department of Agriculture to discharge fully its part of that responsibility." Administrators of the various services within the Department of Agriculture have jointly and individually issued to their staffs instructions in respect to teamwork in carrying out the department's responsibility in the conservation program.

There is much evidence that the renewed spirit of teamwork is paying off, in terms of increased efficiency of departmental workers and in increasing amounts of conservation applied to the land by farmers and ranchers throughout the nation. Successful teamwork involves not alone professional workers within the Department of Agriculture but also soil conservation districts governing bodies, local and State agencies, agricultural stabilization and conservation committees, and finally the ranchers who operate the land.

The results of successful teamwork in conservation are showing up in progress reports relating to the cost sharing program for which the Agricultural Conservation Program Service and the Soil Conservation Service share responsibility within the department. County and State ASC Committees, governing bodies of soil conservation districts, county and State extension workers and technicians of the Soil

Conservation Service have worked together more closely than ever during the past year to formulate a program of cost sharing that has enabled farmers and ranchers to carry out conservation programs that would not have been possible without such assistance.

In 1953 one-third more farmers were assisted with their cost sharing practices by technicians of SCS than was the case in 1952. About 732,000 farmers and ranchers received such technical assistance in 1953. Of these, 49 percent were cooperators with their soil conservation districts and during the year another 11 percent became district cooperators. Thus, it appears that large numbers of farmers and ranchers who requested help in cost sharing benefited also by receiving the same kind of technical assistance as those who were district cooperators. At the same time, the conservation programs of districts were materially advanced through the assistance given under the cost sharing program of the ACP.

That research and education played important supporting roles to cost sharing and technical assistance made available to farmers participating in the conservation program should not be overlooked. Through teamwork the resources of all agencies were made available to the end that *one-third more farmers and ranchers were able to carry out sound soil and water conservation practices than was the case in 1952.*

Some of the more important practices carried out with cost sharing and technical assistance during 1953 include: farm drainage, 972,869 acres; stock water dams and ponds, 41,647; contour farming, 1,455,221 acres; terraces, 1,847,908 linear feet; land leveling, 496,099 acres; water disposal areas, 28,927 acres; sod waterways, 12, 559,053 cubic yards; diversions and dikes, 15,464,687 linear feet; contour strip-cropping, 193,249 acres; reorganization of farm irrigation systems, 460,651 acres; grazing land management, 4,141,795 acres; erosion control dams, 4,998; improved water application, 109,251 acres; irrigation reservoirs, 1,648; and streambank erosion control, 750,334 linear feet.

Of course a great many practices, particularly of a vegetative character, were carried out under the cost sharing program in addition

Note.—The author is chief, farm and ranch planning branch, Soil Conservation Service, Washington, D. C.



to those on which technical assistance from the Soil Conservation Service was supplied. Likewise, cooperators of soil conservation districts carried out many practices on which they did not find it necessary to request cost sharing assistance.

**BANKER LOOKS TO THE LAND.**—John A. Black, president of the Rock Hill National Bank, Rock Hill, S. C., advertises the fact that his business is strictly banking, but supervisors of the Catawba Soil Conservation District have found out that he is also a soil conservationist. He owns several farms in York and Chester counties, but makes no claims to being a dirt farmer.

After opening his bank in 1941 Black began to plant sericea lespedeza on his farms. His enthusiasm for the plant communicated itself to “planters” and farmers, and his bank quarters resounded to talk about sericea. Numerous farmers took up the plant as a major crop.



Both working toward same goal: Earl Glascock, district supervisor, and John Black, president of Rock Hill National Bank.

Supervisors of the Catawba Soil Conservation District established a sort of unofficial partnership with Black in the promotion of the district program. His bank sponsored a weekly advertisement featuring soil and water conservation from September 1943 through December 1946.

This activity presently was being copied in other states and by other business firms.

During 1947 the Rock Hill National Bank sponsored a radio program three times a week over WRHI, Rock Hill, and persuaded the local SCS office to furnish timely tips for its use on what farmers were doing in soil and water conservation.

In January 1948 the bank sponsored the first Certificate of Merit banquet, in cooperation with the South Carolina Bankers Association and the supervisors. One hundred farmers, agricultural workers and business

and professional men came as guests. The certificates were bestowed on 25 outstanding conservation farmers in the 4-county soil conservation district.

For the past year Black has sponsored a weekly advertisement in the Rock Hill Evening Herald encouraging farmers to plant pine trees. This series of ads is still going along.

York County farmers cooperating with the Catawba District will plant 443,000 pine seedlings during the 1953-54 planting season. Orders for at least 100,000 of these were signed in the lobby of Rock Hill National Bank. Black purchased 36 planting bars for loan to farmers for planting trees in York and Chester counties.

Although farm talk in the bank lobby has been mostly on pine trees during recent months, supervisors of the Catawba District are still cashing in on a wide front on the enthusiasm of their banker friend. Because of his interest, more and more acres in York and adjoining counties are being protected from soil and water losses, and are growing timber for tomorrow.

—M. B. BRISSIE

**SIGNIFICANCE OF WATER.**—A river in flood means different things to different people. To the property owner along the stream, it means possible loss of buildings, livestock and crops. The highway engineer sees potential destruction to roads and bridges. The angler sees loss of fish food and fish habitat. The navigation authority sees the flood in terms of silt load and future channel-dredging need. Some farmers with low-lying corn fields along the river might think of the flood as enrichment for their fields—the depositing of fertile soil washed from upstream farms.

In recent years, a growing number of us have observed the color of the flood water. We realize that the muddy color can be attributed to the heavy silt load—the all-important topsoil from our farms—a loss that seriously affects our national well-being.

Today, some of us see the volume as well as the color. We realize that water itself is not an unlimited resource—that water which floods downstream to the ocean will not be available, later, for crops, industry, human consumption, and recreation. The simple truth is that in a growing number of areas the inadequacy of the water supply has become one of our most serious problems.

—*Sport Fishing Institute Bulletin*

God created the good earth for the service of this and future generations. The earth is the Lord's, and tillers of the soil are stewards whose rights are matched with responsibilities. The earth and the homesteads upon it should be hallowed by acts of dedication and thanksgiving. Good husbandry is a clear moral obligation, and the waste of created resources is a sin against our neighbor, against posterity, against the natural order, and against God.

—*The Executive Committee, Commission of Churches on International Affairs*



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WELLINGTON BRINK  
Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, under approval (August 6, 1951) of the Director of the Budget. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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**ALL-AROUND PROGRESS.**—The man who practices good soil conservation is, in most instances, the man who has a good home, a well-kept farm, and a high standard of living, says County Agent D. C. Wylie, Jr., of Chester County, S. C.

"In Chester County," says Wylie, "the type of agriculture has changed in the past few years from almost strictly row-type to more pastures and close-growing crops to support the growing livestock industry.

"The Soil Conservation Service and the Extension Service have worked hand in hand on promoting this kind of agriculture, both for the sake of the soil and for better farm living."

**LEAGUE'S CHOICE.**—*Virginia Wildlife*, the official publication of the Virginia Commission of Game and Inland Fisheries and edited by J. J. Shomon, has been picked by the Izaak Walton League of America as the best state conservation magazine in the nation.

**GRASSLAND INTEREST.**—Over 200 Waukesha County, Wis., farmers plan to renovate pastures. Many have taken soil samples.



**FRONT COVER.**—Water is a universal need. And it is one of South Carolina's greatest resources. Soil conservation districts are working to conserve water at the same time they conserve soil. This photograph by J. B. Earle, of Route 5, Lancaster, S. C., was made on a hot day in July last year.

All orders go to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.



# Reshaping

By ARTHUR B. BEAUMONT



## New England's Farms

Farm pond for irrigation and fire protection.

**R**EVOLUTION in the agriculture of New England began a little over a century ago with the inventions of the mowing machine, the self-binder, and the steel-bottom plow. Prior to that time, in New England, as well as elsewhere in America and Europe, agricultural implements and methods were almost of Biblical primitiveness. The use of commercial fertilizers quickly followed the introduction of improved machinery. The march of progress in agriculture had started, and advance after advance has occurred through the years. The most recent significant development has been the reshaping of New England's farm lands through the application of soil conservation and land improvement practices.

The introduction of labor-saving machinery reduced the drudgery of farming and increased the output per man but, in most cases, not the yield per acre. Nathaniel Shaler, professor of geology at Harvard University at the turn of the last century, in his book, "Man and the Earth," stated that he considered the use of commercial fertilizers the most significant and important advance of the preceding half-century.

Because of the methods of their formation and a great variety of parent rock materials, New England has numerous soil types, among which may be found those that are suited to the growing of any climatically adapted crops. But they are characteristically low in plant nutrients. Having good physical properties and receiving generous rainfall, these soils respond especially well to fertilizers and other supplements, including lime. Prior to the introduction of commercial fertilizers, only low-grade materials such as composts, peat, seaweed, animal manures, and wood ashes were available.

Note.—The author is state conservationist, Soil Conservation Service, Amherst, Mass.

Residents of Massachusetts played important roles in the early history of the fertilizer industry. In fact, the so-called "complete" fertilizer was an invention of Levi Stockbridge, the first professor of agriculture at Massachusetts Agricultural College. The Stockbridge fertilizer formulas became famous in New England. They carried nitrogen, phosphoric acid and potash in proportions thought to be best for growing certain crops. Before the introduction of the complete fertilizer, plant nutrients were applied individually in commercial carriers such as nitrate of soda and superphosphate. William H. Bowker, one of Stockbridge's students, became a leading early manufacturer of commercial mixed fertilizers.



Removing field stones from cropland in Maine.





Tobacco growing in contour strips with terraces, Connecticut River Valley, Conn.

Through the work and influence of the land-grant agricultural colleges, the experiment stations and later the Extension Service, the farmers of New England kept abreast of the latest developments in applied agricultural sciences and technology. Adjustments in land use and cropping systems were made to meet changing conditions and competition. Wheat growing all but disappeared. Specialty farming developed

in certain localities, such as potato growing in Aroostook County, Maine, tobacco farming in the Connecticut River Valley, and cranberry culture on Cape Cod. Yields of crops equaled or exceeded those of other sections. More corn per acre sometimes is grown in Connecticut than in Iowa, and more tobacco per acre in Massachusetts than in North Carolina.

New England, especially the southern part, is generally considered to be an industrial area. It is that, but it is also more agricultural than is commonly known. According to the 1950 census three of the five leading states in value per acre of crops harvested were in New England. Of the three thousand-odd counties in the United States, one New England county ranks 16th and another 26th, in the value of all farm products sold in 1949. A number of other New England counties rank very high in the value of certain farm commodities sold. Yet the agriculture of the area is more intensive than extensive. With the exception of a few places like the Connecticut River Valley, broad, level acres free from stones and stonewalls are conspicuously lacking.

The farms of New England supply only a part of the total food requirements of its population of nearly 10 million. In 1949 there were 91,287 farms on 12,104,788 or one-third of the



A cranberry bog in Massachusetts.





Harvesting contour planted, stripped potatoes in Aroostook County, Maine.



Stripcropped potatoes (dark) and oats, as seen from the air, Maine.





Contented cows on improved pasture in Vermont.

36,399,412 acres in the area. The remaining two-thirds is devoted to forests, cities, highways, and other non-agricultural uses. Recreation has become big business. This creates a demand for more food.

The most recent step in the evolution of New England's agriculture has been the reshaping of its farmland for soil and water conservation and more efficient use of power machinery. This, in many cases, was all that was needed to round out a balanced program of production. Organized, systematic work in soil conservation was started in New England in 1939 with the passage of the Vermont soil conservation districts enabling act. Within 6 years all the other states of the area had passed similar acts. The creation of local, autonomous districts occurred rapidly, so that New England with 64 districts is completely covered except for one county and part of another in Maine. These districts are controlled by locally elected supervisors, and the Soil Conservation Service cooperates by supplying technical assistance.

Progress made in these soil conservation districts within their comparatively short life has been highly gratifying. From Lake Champlain to Cape Cod, and from Aroostook County to the lower Connecticut River Valley, farmers are availing themselves of the technical assistance

obtainable through districts. The total number of farmer cooperators was 30,762 at the last count and their acreage totaled 4,495,360. Thus, about one-third of all farmers and one-third of the farm acreage have been brought into the program.

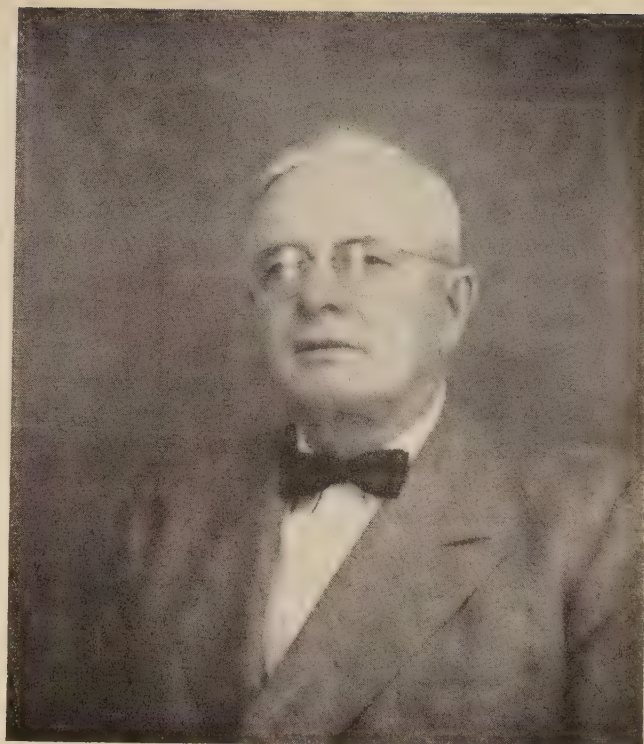
Thirty-six conservation and related land improvement practices are used in conserving and improving New England soils in addition to those involving the addition of lime, fertilizers and manures. They are standard practices developed by the Soil Conservation Service and differ from those used in the South and West mainly by greater use of vegetation and less of structures. Much use is made of grass, trees, and shrubs. In order to give a better idea of the kind of practices and the extent of their use, some of the more important accomplishments as of June 1953 are listed below:

Contour farming	acres	89,311
Stripcropping	acres	48,504
Terracing	miles	43
Diversion construction	miles	509
Grassed waterways	acres	784
Constructed outlets	miles	753
Streambank erosion control	miles	94
Tree plantings	acres	14,213
Windbreak plantings	miles	69

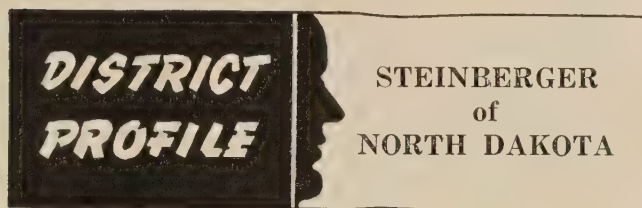


Land clearing	acres	39,141
Obstruction removal	acres	70,002
Open drains	miles	897
Covered drains	miles	120
Ponds constructed	number	3,423

The application of practices of soil and water conservation and related land improvements is thus enabling New England farmers to put their physical plant in good order for maximum production. These practices in many cases were all that was required to balance the program of production. The establishment of conservation practices assures the continuation of the production program through the years with a minimum soil loss or deterioration. State and county agricultural extension services, agricultural experiment stations, the Soil Conservation Service, the Agricultural Conservation Program Service, and other Federal and State agricultural agencies, including soil conservation districts, are playing important parts in this resurgence of New England's agriculture.



Henry J. Steinberger.



"We as tillers of the land must enlist support from those who are users of the land to help put our program of conservation across to the people."

This is a familiar statement by Henry J. Steinberger, outstanding soil conservation district supervisor of Renville County, N. Dak.

Steinberger came from Wilkin County with his parents in 1902. They homesteaded in old Imperial Ward County, which later divided into Ward and Renville Counties with the Steinberger homestead in the latter. Henry's son, Jack, is a partner in farming operations. They have been in conservation farming since the start of the district, and they are especially proud of the several miles of live snow fence plantings which are part of their conservation plan.

It was largely through the efforts of Henry Steinberger that the Renville County Soil Conservation District was organized in 1944. From

the outset he has been a supervisor "spearheading" the district's program. In 1952 the board's membership—Melvin Duerre, H. M. Hansen and Steinberger—were State winners in the Goodyear Tire and Rubber Company contest for district supervisors' achievements. They spent a week at the Goodyear farm in Phoenix, Ariz.

Henry is very active in affairs of the district, state association, and the national association. In 1952 as president of the North Dakota State Association of Supervisors, he and the state association officials placed in their program of action a request of the Governor of North Dakota to designate a Soil Conservation District Week. The committee asked supervisors throughout the State to contact their local clergymen on the week and suggest they preach sermons on conservation. The response was excellent and from this emerged an effective conservation spokesman, Rev. Walter Forred, of the Federated Church of Lisbon, N. Dak., who is dedicated to the rural life work of the church. Through Steinberger's encouragement, Rev. Forred has appeared as speaker at nearly all of the area supervisors meetings in the State; last summer at the North Central Regional

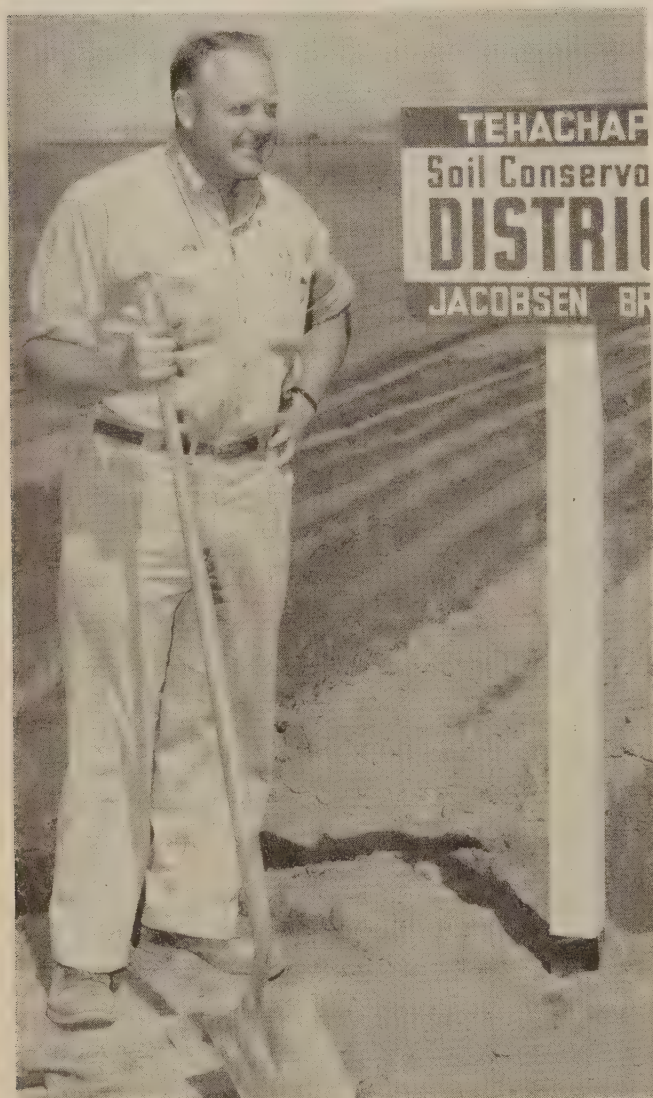
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## DISTRICT PROFILE

J. C. JACOBSEN, JR.  
of  
CALIFORNIA

**O**LDTIMERS gaze in awe at the crops growing today in Sand Canyon near Tehachapi, Calif. Only 10 years ago the area was waste ground covered with rocks. J. C. "Jake" Jacobsen, Jr. has been very instrumental in changing rock-strewn, submarginal, idle ground into an area that is very productive. An important factor that made this economically feasible was the construction of a machine to pick the rocks from the ground and load them onto a truck. Hand labor was prohibitively costly.



Jacobsen with the trademark of the western irrigation farmer; a long-handled spade.

Jake started farming for himself in 1929 at Twin Falls, Idaho, having worked on farms several years previous to that date. While there, he was engaged in growing potatoes, corn, truck crops, forage crops, and raising cattle. A working knowledge of conservation farming was gained through experience on the rolling fields of that ranch. As he says, he was forced to practice conservation measures there. In 1941 Jake and his family moved to Tehachapi and established their home where it has been maintained until the present time.

In 1947, the board of supervisors for Kern County, passed a resolution creating the Tehachapi Soil Conservation District. The following directors were elected: J. C. Jacobsen, Jr., Sam Iriat, and Al Bailey, all of Tehachapi. At the organizational meeting held February 4, 1947, Jake was elected president of the board of directors of the district, a position he has held ever since. Jake's voice has frequently been heard telling of the benefits derived from a district, and giving encouragement to groups sponsoring the formation of other districts nearby.

Jake is civic minded, and does his part to improve the farmer's lot and make the community a better place in which to live. He has held many responsible positions: chairman, Tehachapi Union High School Board of Education; director, Bank of Tehachapi; mayor, City of Tehachapi for 4 years; member of the City Council of Tehachapi for 6 years; chairman of the Boy Scout Committee for 2 years; scoutmaster for 3 years; president, Kern County Potato Grower's Association; president, Kern County Seed Potato Association; director, California Crop Improvement Association, representing 7 California counties; director, National Potato Council, and director, National Potato and Onion Association.

Jake's first love, however, is down-to-earth work on a ranch, growing plants and raising cattle, at which he is a top-notch performer. Largely through his cooperation with the University of California and the Soil Conservation Service in testing seed production under actual growing conditions, the following crops were introduced into the Tehachapi community: sugar beets, Atlantic alfalfa, Narrangansett alfalfa, Ranger alfalfa, Kenland red clover, Mer-





This is how Jacobsen irrigates his potatoes.

ion bluegrass, Goar's tall fescue, and Okaroa orchardgrass. This work is a continuing process with Jake and he has many grasses and legumes now growing and being tested for seed yields.

Jake's interest in conservation can be grasped readily as one visits his ranch. If you are a newcomer, you are amazed at the many conservation measures established there. The first conspicuous one is contour furrow irrigation and farming. One field is producing potatoes in contour grade rows, another field, sugar beets; another, grasses; another, legumes. Looking to the windward side of one of the cultivated fields, you see a nice green windbreak of Arizona cypress, while an area nearby which is unsuited for cultivation has been planted to black locust seedlings. As you approach the outer limits of his ranch, you reach a spot where runoff water from the mountains tends to concentrate. There you find a vegetated waterway constructed and

seeded to prevent excessive erosion. The vast expanse of grasses and legumes spreading before you is inspiring, as you realize that those acres are being well protected from water and wind erosion. Another very noticeable conservation practice is the use of portable irrigation pipe. Jake informs you that they are used to regulate length of irrigation runs. They have spaced gated outlets and can be placed in any portion of the fields, thus bringing water in any desired amount to the sections needing it. This means even distribution, proper application, and penetration of irrigation water for all crops, and an important conservation of water.

"Our average production per acre on all crops has been increasing throughout the 6 years of participation in the soil conservation district program," Jake declares. "The farmers in our district are able to keep local control of the conservation program through the farmer-elected

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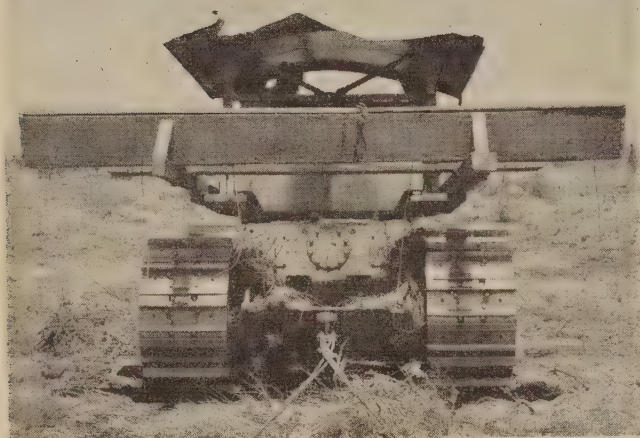


Growing Narragansett alfalfa the Jacobsen way, in contour grade rows. Irrigation water being applied.



# Simple Seeder for the Range

By ROY L. SHIPLEY



The "Johnston seeder" as mounted on the rear of a tractor.

A **HOMEMADE**, low cost grass-legume seeder for use on brush-cleared range-lands has been devised by Allan P. Johnston, manager of the Kappapala Ranch, Hawaii.

Johnston, who is chairman of the Kau Soil Conservation District, worked out the seeder after years of wrestling with range-seeding problems. The seeder has real promise because it is inexpensive to build and keeps planting costs down.

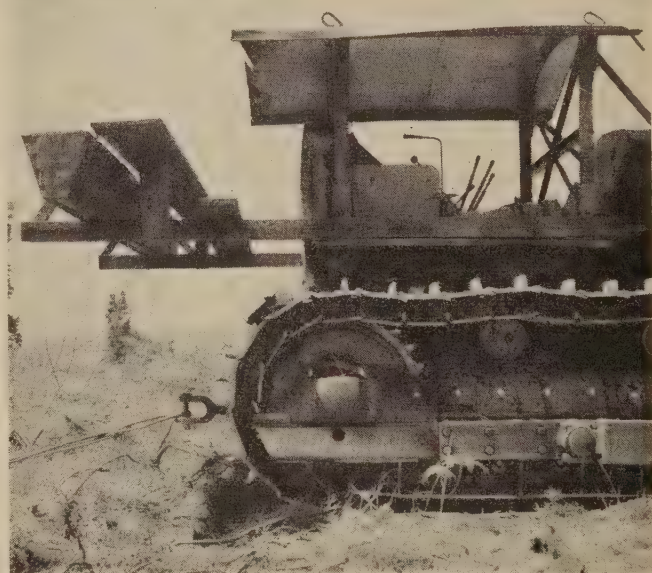
The seeder box or hopper is constructed very much after the pattern of a seeder box on most conventional drills. The box is about 12 feet long and about 12 inches deep. At the top it is 12 inches wide and tapers to about 4 inches wide at the bottom. The box was constructed of unplanned lumber 1 inch thick.

Feeder openings bored through the bottom of the hopper are about  $\frac{3}{4}$  inch in diameter and are spaced 16 inches apart. The box is separated into small compartments by wooden dividers intended to prevent the grass and legume from sliding to one end on rough terrain or when traveling on a slope. The dividers are fastened midway between the "puka" openings.

A  $\frac{1}{2}$ -inch pipe runs the entire length of the seeder box and is mounted in the top center so that the lid can be closed without binding on the pipe.

The problem of getting grass seed to flow evenly through feeder openings was overcome by the use of 6-gauge galvanized wire, about 4 or 5 feet long. It runs through the feeder openings and is fastened at the top to the  $\frac{1}{2}$ -inch pipe mounted inside and near the top of the box. The pendulum motion of the wires aids in a steady flow of seed through the openings.

In calibrating the seeder to seed the proper number of pounds per acre, 3 holes of  $\frac{3}{8}$ -inch,



Broadside view showing seeder mounted on rear of vehicle, well above rocks, brush and rough terrain.

$\frac{7}{16}$ -inch and  $\frac{1}{2}$ -inch diameter and about 2 inches apart, were bored through pieces of heavy tin 2 inches wide and 6 inches long. The 2" x 6" tin plates were then slipped over the wire through the size of opening desired, and fastened by small screws exactly over the  $\frac{3}{4}$ -inch hole drilled through the bottom of the hopper.

Calibrating the seeder to drop enough, but not too much, seed was a sticker until Johnston hit on an idea. The gimmick was a 2-pound coffee can with a hole in the bottom large enough to slide upward over one of the wires hanging below the seeder. The can was then tied against

Note.—The author is range conservationist, Soil Conservation Service, Territory of Hawaii.



the bottom of the hopper so as to catch all the seed coming through an opening.

Johnston operated the seeder over a distance of about 1,000 feet. Seed collected in the coffee can then was weighed and multiplied by the number of openings in the drill. Thus, it was possible to calculate the amount of seed being dropped per acre. When too much seed was going through an opening the metal plate was moved so that a smaller opening was in place.

The first seeder worked so well that Johnston made a second one. This took less time and money to build. The cost now is estimated at \$25 for labor and materials. Both models are inexpensive but effective.

The first seeder was mounted on 4" x 4" timbers on the back of a D-8 caterpillar tractor at about the same height as the driver's seat. The seeder is suspended about 5 feet above ground, well away from rocks, brush and rough terrain. It is relatively free from repairs and after a month's operation none were necessary. A few slight improvements were made after testing.

Johnston explains that the second seeder mounted on the back of a D-4 crawler tractor did not seed at the same rate as the one behind the D-8 tractor. The speed at which the seed drops through the seeder openings is dependent upon vibration of the tractor and the movement of the wires. The seed automatically quits



Looking down on seeder with lid open. Divider boards are spaced about 16 inches apart to keep seed from sliding to one end on sidehills and steep slopes.

flowing once the machinery is stilled. The second model was calibrated to seed the right amount by changing to the proper opening in the metal plate and again securing the plate to the bottom of the hopper.

The seeder broadcasts the seed. A dragging chain covers it. Observations of germination and stand on some of the earliest seedings show a surprisingly uniform stand of growth. Johnston sums up results this way: "The stand is much more uniform than when seed was broadcast by hand and there is a considerable saving in labor. Now one man does a better seeding job than three men did before. This is accomplished by seeding and covering the seed in one operation."



Bottom of seeder, showing metal plates and wire emerging from hole.

**THREE-WAY CROP.**—*Sericea lespedeza* is almost a sure crop, according to Walter M. Atkinson, a farmer of the Chester (S. C.) Soil Conservation District, who points out *sericea* may be used for hay, grazing, or seed.

"As for me, I prefer a seed crop," Atkinson says. "The price has been good since I started growing *sericea* 4 years ago. But if a farmer prefers a hay crop, he can get it plus, in all likelihood, a second crop for seed.

"Of course, if *sericea* is used for grazing, it is not likely to produce either hay or seed unless the grazing is carefully controlled."



# Scout Leaders Get Special Training

**W**HEN President Eisenhower suggested that the Boy Scouts of America perform a National Conservation Good Turn in 1954, he set in motion a tremendous force of energy on the part of Scouts, Scout leaders and conservation leaders. President John M. Schiff of the Boy Scouts of America appointed a committee to work with conservation technicians of federal, state and independent agencies.

Of primary importance is the fact that the committee recognized that conservation is now a science. Many thousands of professionally trained conservationists in the field stand ready and willing to help and guide in conservation activities. Some of the problems in conservation work being faced today are the result of ill-advised and ill-planned activities in the past. In setting up the program so as to be of greatest benefit to the country, the committee geared it to the locally-planned operations of the professional conservationists. They listed all of the agencies where Scouts and Scout leaders could get help. Among them were the local soil conservation districts and the Soil Conservation Service. The supervisors of such districts knew the value of having farmers, through their own efforts, carrying out well-planned and sound soil and water conservation programs. They felt the same should be true of the Scouts and Scout leaders.

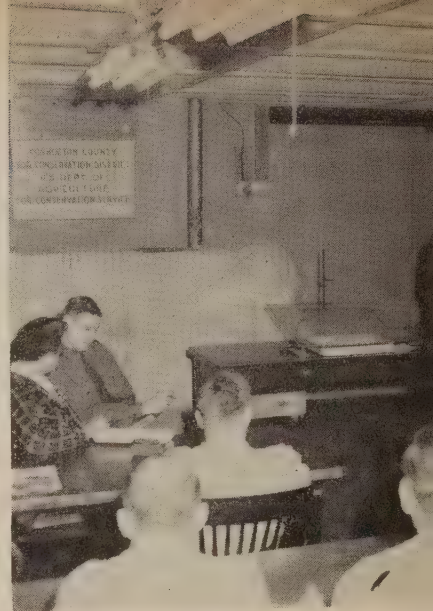
The committee of the Tomahawk Council, Coshocton, Ohio, applied to the supervisors of the Coshocton County Soil Conservation District for assistance in setting up a conservation program at the Council camp. It was apparent that many of the Scout leaders in the Council were eager for training in conservation principles so that they could better help the Cubs, Scouts and Explorers on the Conservation Good Turn in 1954.

M. Harrison "Doc" Taylor, Soil Conservation Service training center supervisor, being a post advisor and having two sons, Craig and Paige, in Scouting, was invited to discuss the Conservation Good Turn in 1954 with the Council camping and activities committee by Chairman, R. R. "Casey" Jones. Taylor and George N. Osterson,

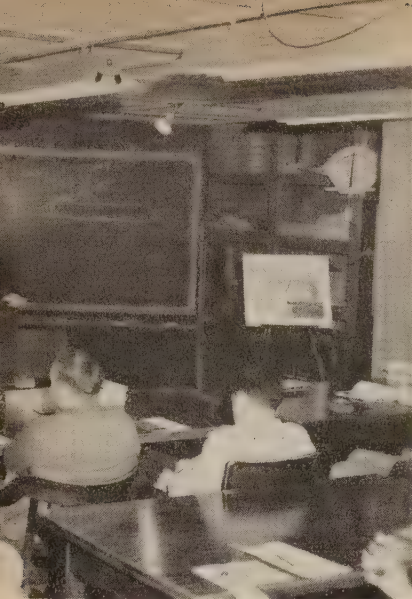
Top—State Forester Moyles was an effective teacher.

Center.—Soil Conservationist Morris talks about strip crops.

Bottom.—Taylor, training center supervisor, discusses wildlife.







assistant training center supervisor and member of the department conservation committee of the American Legion, helped the committee arrange a conservation training session designed not only to assist the Scout Leaders acquire information and techniques on projects the units could carry out, but provide them a clear-cut picture of the work being carried out in soil conservation districts throughout the Nation.

In the meantime the camping and activities committee was developing a soil and water conservation plan for the Council camp with the assistance of Glenn Morris, soil conservationist of the Coshocton County Soil Conservation District. They planned to use the camp in such a way that each acre of land would be used according to its capability. Those conservation practices which would insure adequate protection and development were worked into the plan.

The National Council felt that a good time to start the "Boy Scout Conservation Good Turn in 1954" would be Wild Life Week, in March. Climax activities are suggested for the month of October.

It would not have been difficult to have had a hundred Scout leaders at the one-day training session. However, one of the best ways to learn principles is to teach them to someone else. It was decided to hold the group to 50 in order that everyone attending would have a chance to discuss conservation principles in detail. They could, in turn, train other Scouts and Scout leaders.

The SCS training center is 9 miles northeast of Coshocton at the USDA Soil and Water Conservation Research Station. All new SCS employees of Midwest States attend the center to receive training in basic conservation principles. Since there were no trainees at the center, it was picked for the training of Scout leaders.

The center has the facilities to demonstrate and exhibit all major soil and water conservation practices. It was an ideal training site for Scout leaders. Almost any other district in the country could locate a good site for a training session this year.

Through the efforts of the supervisors of the Coshocton district, and Robert Calvert, Scout Executive of the Tomahawk Council, men trained in conservation work were recruited to plan and carry through the project. Taylor was chosen general chairman. Glenn Morris, local soil conservationist, and Lloyd Harrold, project supervisor in research, handled the training. Morris showed the importance of land capability. He explained the uses of certain conservation measures: Grassed waterways to carry excess water from a field; contour farming on fairly short slopes to prevent washing and allow water more time to enter the soil; terraces to take off excess water so it will not damage the land below; diversions at the proper place to break a long slope and protect bottom or hill ground from too much water; stripcropping to make it possible for the land to be covered with grass





Scout Leaders get outdoors for Bob Yonker to show some principles of tree planting.

and legumes at least 50 percent of the time, and to give protection on short slopes; tile drainage to remove excess water from the soil so it can be replaced by air for the plant roots to grow.

Lloyd Harrold explained the water cycle and showed how important it is to have the soil in a condition to absorb the rain. He took the group to the lysimeters to observe the method used at the research station to obtain information on ground-water movement. A lysimeter is made up of an undisturbed block of soil 8 feet thick, with provisions made to measure what happens to every drop of water that falls on it. The area is one five-hundredths of an acre in size and the entire block weighs 130,000 pounds. One of each battery of three lysimeters is set on a scale sensitive enough to weigh the dew, where the weight is recorded automatically every 10 minutes. This makes it possible to know exactly what happens to each raindrop that falls. Methods of securing other information on ground temperatures, water runoff, erosion and evaporation were explained. The Scouters could see the importance of having dependable research back of the science of conservation and realize the necessity of getting

it into the hands of farmers and conservationists.

R. E. Youker, a research man and a forester by training, discussed the projects set up to be carried out in that field. He stressed the importance of planting trees on properly adapted soil. The portion of a tree, the roots, which we don't see, play a most important part in its support, health, condition and form. Exhibits of cross sections of logs showed the effects of fire and shading, the influence of site on growth, and damage caused by fencing. Many of the Scout units plan tree planting projects, and Youker showed them how to organize their groups for planting to get uniform distance between trees.

Sheets showing the types of trees to remove under woodland management were handed to the Scouters so they will have illustrations for their charges. There was fieldwork in a woodlot in the afternoon.

Bill Blanke and Omar Runyan, Scout field executives accepted the responsibility of handling outdoor manners. They obtained the assistance of Walt Moyles, forester at Mohican State Park.



The three worked together around a campsite on the grounds and showed how rubbish should be destroyed, latrines built, grease and dish-water disposed of, and other matters involving "good manners" on a campsite. Moyle showed a section of a white oak tree which had been hacked to death during the past year. He also related instances where good manners are very noticeable among Scouts and people who really understand conservation.

Taylor stressed the need to have a 12-months food supply for wildlife. With proper plantings, the emergency feeding of wildlife after a storm would almost be a thing of the past. Food should be where it is available under all conditions and where wildlife can always find it. It was noted that food, cover and water usually precede large numbers of wildlife. Besides the 12-months food supply, different kinds of cover such as nesting cover, travel cover, resting cover, and night cover must be present.

Dens, burrows, brushpiles may be provided by Scouts for many types of wildlife. Dead trees should often not be cut because of the wildlife use they might have as den trees, nesting trees or food trees.

It was shown that wildlife does not consist merely of those birds or animals hunted by sportsmen but of the many more that help nature keep a balance between injurious and helpful types. Included are many of the snakes, owls, shrews, skunks, and insects for pollinating flowers or destroying harmful insects.

Two farm trailers were used to transport the Scouters to the field in the afternoon to see actual examples of soil and water conservation in operation. On a section of living fence it was



From left—Glenn Morris, Bob Yonker, Walt Moyle, Bob Calvert, and "Doc" Taylor. All are rather proud of this exhibit.

possible to observe many of last year's bird nests and praying mantis egg sacs. It was easy to see that the surrounding area would be protected from insect damage, while the clean fence row did not reveal any type of wildlife whatever.

Various types of tree plantings and woodland management practices were observed and discussed. It was eye-opening to see the men catch the ideas and principles of conservation quickly, and start talking about what their units could do on areas these observations brought to mind.

Scouters attending the session expressed a desire to have more training sessions based on conservation. Plans are being made to hold a Council Conservation Camporee soon, where Scouts will be able to work on conservation projects under the direction and supervision of technicians. Posters and displays to be used around the Council were exhibited and explained during the day.

Next October will mark a month of conservation observations and reports of accomplishments by individuals and units on the Conservation Good Turn in 1934 in Tomahawk Council. It will not mark the end of the conservation work in Scouting but rather a good beginning. Conservation is a major part of Scouting and must be well planned, well organized and well executed for the future of the Nation and Scouting.

—M. HARRISON TAYLOR



At the one-day training school; this group of Scout Leaders learned fast.

**NEW PROGRAM.**—A combined study program leading to degrees in both business administration and natural resources has been announced by the University of Michigan.





"Where there is no vision, the people perish . . ."

# Religion and Conservation

By REV. WALTER A. FORRED

FROM time to time much has been said and written relative to religion and conservation. What, specifically, is the tie-in between the two? This is a question which is asked by many and it deserves a well outlined answer.

If religion is to be vital it must be practical for every phase of life. It must not only give strength for life's giant hours of sorrow and trial, but must also give guidance and assistance in every avenue of human activity. Each act of man is eventually weighed to determine his religious sincerity. By their words, they reflect their relationship to God. If man is to be able to live by religious principles, he must possess a *total gospel for total life*.

Conservation, in all of its phases, must certainly come within the scope of such a total gospel. By his acceptance or rejection of such a stewardship man reflects his attitude toward the creation in which God has placed him. If he accepts such a religious dedication it becomes the paramount choice in a chain of continued choices. To be consistent in his religion, man therefore is bound to make all other decisions in the light of his first choice. This demands that he practice a religious attitude in his stewardship of all things, and certainly of the natural resources. In the light of such reason, man either is conscientious in this application

of religion, or he disassociates his religious practice from his workaday world and employs only those practices which will enhance his materialistic possessions. In this respect, there is a definite association of religion and conservation, because it is the objective of every true religion to elevate man's goals until they are in harmony with the spiritual rather than the material.

Man's religion is certainly more than making affirmations about God; it must be the practice of such professions in everyday life. The realistic application of this axiom makes religion a stimulant instead of an opiate, and causes man to aspire toward his highest vision. Man's affirmations and professions of faith are truly great. To say, "I believe in God, the Father Almighty, Creator of heaven and earth;" or "The earth is the Lord's and the fulness thereof, the world and they that dwell therein, for He hath founded it upon the seas and established it upon the floods;" to read, "The heavens declare the glory of God and the firmament showeth his handiwork; day unto day uttereth speech and night unto night showeth knowledge. There is no speech nor language where the voice is not heard;" to sing, "This is my Father's world," or "O Beautiful for Spacious Skies, for amber waves of grain," is to feel the creating presence of God vibrating universally. Such words awaken men to a wholesome moral aggression



in life and are their salvation from the slovenly *status quo* of mediocrity.

In the Bible one finds a library of books, many of which were written in an agrarian background to agrarian people. The teachings of Jesus were couched in the language of the sower of the seeds, the trimmers of the vine and the shepherd of the sheep. This book could be no better understood by any man than the farmer. It certainly speaks with a vivid clarity to those who have witnessed the clouds of dust darken the sun and change midday to midnight when it says, "The wind passeth over it and it is gone and the place thereof shall know it no more." Religion and conservation have an inseparable relation. Either we believe what we profess or we do not. If we do, then it is time for us to treat the earth as a possession of God. If we do not believe our professions, then our religion is a sham, an escape, and worthless.



"And God saw everything that He had made and, behold, it was very good . . ."

The practice of conservation is, in itself, a part of man's religious obligation. In its final form, conservation is the effort of man to make the laws of natural science function in his environment. These laws have been in existence from the beginning. They were created by God and revealed to man as he studied, searched, and experimented to discover the secrets of the world about him. What man found was an orderly world which, when operating in conformity with systematic laws created by God for its functions, was a never ending program of creativity. The conservation program is

nothing more than making these laws operative, where possible, in assistance to God and His eternal purposes. Where man breaks God's laws he can expect serious consequences. When he mines the topsoil, depletes the woodlots and forests, uses his equipment to plow gullies into the hillsides, creating erosion, or exploits any of our natural resources, he becomes a threefold sinner. First, as a destroyer of God's possessions; second, as a depletive of his society's wealth and well-being, and third, as a pillager of the health, security, and living standards of our future generations. Surely, the sins of such people will be passed on to their children and their children's children. Religion and conservation *are* tied together!

It is not the job of the church to teach man the use and function of these natural laws, for churchmen are neither trained nor equipped for the purpose. It is, however, the responsi-

bility of religion to point out man's sins, to hold before him ways of growth in cooperation with God. It is the job of the church to lead men to the understanding that they must, if they are to be truly religious, learn how to be cooperators with God to best fulfill their purpose in life. To offer man his greatest salvation, the church must teach and preach the redemption of every avenue of life. This is the total gospel for total life.

The church and conservation also have a united program in that *the church will only be as good as the resources which surround it*. If





"For, the Lord thy God bringeth thee into a good land . . ."

it is to be a strong, virile organization, it must be surrounded by abundant resources out of which it can reflect a strong message to society. The outreach of the church through its financial aid to missions, religious education, and socially related programs is dependent upon the resources from which it can draw. Poor farms and eroded soil, or depleted forests and worked out mines produce very little for the great outreaching message of the church. Thus, to build the topsoil, replenish the forests, and use our natural resources in the most economical way is to carry on the stewardship, not only of the material things about us, but the projection of the Christian message to the entire world.

Such a program of intercooperation is now being inaugurated in the State of North Dakota. This program is known as "The North Dakota Plan." The manner in which it functions is as follows:

It was conceived and built through the cooperation of the State directors of the district supervisors organization, the Soil Conservation Service, and cooperating clergymen. The plan first recognized that all three of these groups needed an understanding of what each could offer the other in assistance to their respective causes. Upon this basis it took its beginning and developed to become quite workable.

The employees of the Soil Conservation Service work only in advisory capacity to the program itself. The main weight of the work falls upon the shoulders of the district supervisors and the clergy.

The district supervisors, most of whom are churchmen, make the initial contact with the local clergyman who would be willing to cooperate in the district. They present the necessary information, such as copies of lectures, talks, and sermons which have been delivered on the subject to outline the aims and objectives of the program. In addition, the supervisor has a definite responsibility for the minister by offering him a place on the next public program to bring a similar message to the local people.

By making a friend of the minister, the local work unit leader is able to teach some of the practices which are most fundamental to the locality.

It has been my own privilege to work closely with this program and with the men in the movement for the past two and a half years. As a minister I can say that the experience has been one of the greatest in cooperation, enthusiasm for each others' programs, and dedication to a great cause that I have ever seen. The men themselves, like the state conservationist, Lyness G. Lloyd; the state director, Henry Steinberger; the regional vice president, Otis Tossit; work unit leader, Arnold Seim; county extension agent, Earl Sulrude, and members of the State College staff too numerous to mention, have all contributed.

In such a program as this, one can see religion and conservation in action. After such an experience, the real question is not how are they tied together, but how could they be separated?



# Tile Solves Problem In Palouse



Interception effected by tile line around wet area on I. A. Zakarison's farm.

*Wet bottom lands are being reclaimed by interception of underground water as it flows across clay layer.*

By CHARLES T. WEBB and WILLIAM D. HICKMAN

**D**URING the last few years considerable acreage of potentially high production has been reclaimed in the Palouse area by the use of tile.

In this part of Washington and Idaho, tile is used to intercept the underground water draining from the hilly terrain. Nearly everywhere here, the soil will accept water moderately well down to about 3 or 3½ feet. At this point a tight clay layer is encountered. The excess water seeps into the soil until it strikes the clay layer and then drains off the sloping land just above it. As the slope diminishes the lateral movement of water over this clay layer is lessened. If the drainage area is large the excess water, draining down slope to a comparatively flat area, causes wet spots. The condition may become so serious that the entire draw or flat will be too wet for high production. The end condition is a wet-weather lake, with portions of the flat never drying out sufficiently

to crop. This condition makes it very hard to control weeds. It is necessary to fertilize and weed-spray these areas much later than the balance of the field.

To overcome such difficulty, a tile line is laid on the upper side of a wet spot, its purpose being to intercept water draining across the clay layer. To find just where to lay the line, it is best to "prospect" a bit. For this an orchard soil auger is useful.



Laying tile on Cliff Wolf farm, June 1953.

Note.—The authors are soil conservationist, Pullman, Wash. and soil conservation aid, Palouse, Wash., both of the Soil Conservation Service.



A few borings, plus the technician's knowledge of how water behaves in this community, helps to determine the location and depth of the tile line. Nearly all the tile lines in this area are interception systems. Occasionally, however, a deeper vein is encountered and is not eliminated by the interception line. In this case it is necessary to run a spur line directly to the source of water.

The Soil Conservation Service has found that this practice often results in the capability class of the land being raised from Class IV to high-producing Class II. When otherwise poor areas are made productive again, the operator frequently finds it practical to seed his very steep and eroded areas to permanent cover, thus taking another step toward complete conservation.

As laying tile is considered a permanent-type practice by ACP, the SCS is charged with technical responsibility. In many cases the Service will make the layout with grade stakes to indicate the line of the tile and the depth it will be necessary to place the tile in order to keep on grade. In other instances an experienced contractor does the layout job himself, with an SCS technician inspecting the work and completing the ACP papers.

One of the first SCS technicians to establish

the proper method of intercepting by tile the excess water draining from the Palouse Hills was Jim Rabdau of Moscow and Genesee, Idaho. More recently, Larry Sorenson, of Idaho, and the authors of this article, of Washington, have assisted the farmers to install the intercepting method on many miles of wet flats.

Several farmers in the North and South Palouse (Wash.) Soil Conservation Districts have completed the laying of large amounts of tile. In the North Palouse district last year 16,000 feet were laid by Paul Mader and 4,500



Covering tile on Zakarison farm.

feet by I. A. Zakarison. In the South Palouse district, Merle Harlow installed 8,700 feet and Wendell Gwinn put down 8,247 feet.

In most cases the cost is amply repaid by the acres reclaimed.

Merle Harlow, of Pullman, is pleased with his experience: "After putting in tile on the flat north of the house we were able to seed the whole flat to spring grain, something we have not been able to do for many years. The pond at the lower end of the drainage system gives me stock water down where I need it and dries up those three springs near the head of the draws."

Paul Mader, of Palouse and Pullman, Wash. has this to tell: "Tiling reclaims land that is non-productive into the most productive and most desirable land in the field. It cuts down cost of operation by allowing the field to be



Parson tile-laying machine being demonstrated on Pat Lynch farm.





Closeup of backhoe in operation, South Palouse Soil Conservation District.

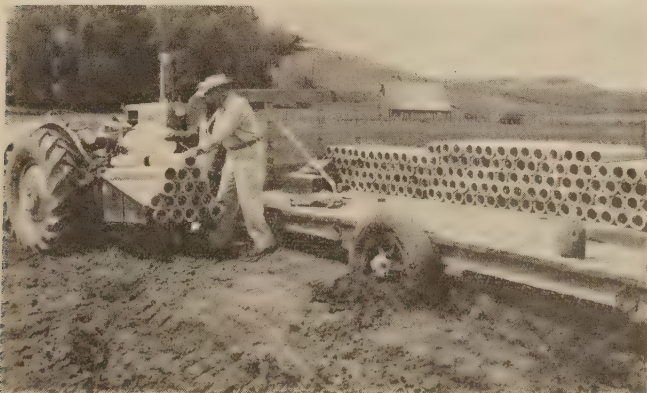
worked as a unit rather than making it necessary to come back later and seed, spray or fertilize these small wet areas. After tiling, no time is lost or machinery broken because you happen to get too close to the wet land and get sucked in. I plan to put in approximately 2 miles of tile per year till all the wet areas are corrected. Tiling will greatly benefit me in 1955 when I plan to pasture 350 acres of sweet-clover. The live creek caused by the tiling in this field will furnish water at several places."

Here are a number of points to consider if the tile system is to operate properly:

1. In the Palouse area be sure the tile is laid on, or in the top part of the clay layer. If the tile is above the layer the water will drain down below it and the tile will be useless.

2. Lay the tile properly so that there will not be low places where it will become plugged.

3. It will always be necessary to have an outlet for the tile. A roadside ditch or grassed waterway allows good flow from the tile. Keep



Transferring tile from large cart to wheel tractor for transporting to job

brush and growth cleaned away from the end of the line.

4. A solid section of steel or Orangeburg pipe often is recommended at the outlet in order to prevent animals from loosening the short lengths of clay tile.

5. Straw or a strip of tar paper is used over the tile to prevent too much soil from getting in at the joints when backfilling.

6. A screen or grating at the outlet is important, to prevent rodents from entering.

During the recent winter ACP signups, the communities of Pullman and Colton, Wash., representing the southeastern part of Whitman County, requested assistance for over 42 miles of tile. If this is an indication of the demand generally, the tiling program throughout the Palouse will be of tremendous proportions this year of 1954.

## STEINBERGER OF NORTH DAKOTA

(Continued from page 271)

State Area Supervisors meeting in the Black Hills of South Dakota, he spoke on "Religion and Conservation." Through Steinberger's efforts, arrangements were made for him to address the last convention of the National Association of Soil Conservation Districts in New Orleans.

A plan to coordinate the programs of district supervisors and churches was developed by this minister and adopted as part of 1954's action program in North Dakota.

Henry Steinberger's activities have not all been in the field of conservation. He organized the White Ash Community Club 7 years ago, has served continuously on the Renville extension advisory board, has helped organize the Renville-Bottineau Counties Agricultural Improvement Association, has served on the advisory committee to the Greater North Dakota Association in developing their annual program, and has assisted in organizing the Renville County Township Supervisor's Association. He was twice elected as official North Dakota State delegate to the national convention. Henry has attributed his success over past years to his good wife, and ardent conservationist, who has encouraged and assisted him in his achievements.

Hats off to an outstanding district supervisor as he continues his work of conserving our Nation's soil!





**ENGINEERING FOR AGRICULTURAL DRAINAGE.** By Harry Burgess Roe and Quincy Claude Ayers. 501 pp. Illustrated, 1954, New York: McGraw Hill Book Co., \$7.50.

The authors have appropriately dedicated this drainage text to the large group of men in the various phases of agriculture earnestly seeking the best practices for the control of soil moisture in crop production. This text shows how good practice in farm drainage is closely allied to soil science, agronomy, farm management and other agricultural sciences. Special stress is laid on soil, soil-moisture characteristics, and plant-moisture relationships. Two excellent chapters are devoted to soils in relation to drainage and water properties of soils.

The basic concepts of rainfall and runoff are discussed to enable the drainage engineer to understand the factors which influence runoff. Data of particular value to the drainage engineer are presented to facilitate estimates of flood flows. The chapter on flow and measurement of water contains the explanation of Chezy-Kutter and Manning's formula and provides tables which enable a solution of ditch flow problems. The text describes the use of various field drainage practices such as intercepting ditches, field drainageways and dead furrows and special types of drains, such as mole drains and vertical drains. Of particular interest is the discussion of the major types of drainage problems.

The design and construction of open ditches receives detailed consideration by the authors. The discussion of drainage surveys should be of particular help in training technicians. This includes quotations and data obtained from numerous other workers. It is this section, in particular, which will provide subject material for debate and for differences in opinion by drainage technicians. For example, the author quotes the late E. R. Jones as recommending in general "there is no proper place for an open ditch with a bottom width less than 4 feet and a maximum flow depth less than 6 feet." In a great many locations smaller ditches are used

and it would have been well to discuss such conditions. Another example where further explanation would be desirable is the problem which illustrates the design of an open ditch in which the design proceeds upstream. Probably in most instances it is advantageous to design from the upstream end downward. This is particularly essential where the topography requires the use of more than one drainage coefficient. However, by any standard the authors have done a creditable job in assembling and presenting the empirical procedures used in the design of open ditches.

Examples of drainage plans are provided which serve as a good guide. The text is amply illustrated with figures and photographs that illustrate the principles which are explained. These make for easy reading and understanding. An entire chapter is devoted to open ditch maintenance. Since this practice has been neglected in many locations this emphasis is considered appropriate.

The authors deserve particular credit for the excellent chapters on location, design and construction of underdrains. They cover the principles of movement of ground water through the soil and give a detailed discussion of Neal's formulas and charts for determining depth and spacing of drains. The discussion of drainage of irrigated lands will make the text of particular value in the Western States. The material on soil moisture control of peat and muck soils presents authoritative data not readily available from other sources.

The text contains problems in appropriate chapters, including design of open ditches, tile drains and drainage of irrigated lands. Such problems should be of particular help in enabling technicians having training responsibilities to set up problems for trainees.

The reviewer has known and worked with both authors for many years and wishes to join with other drainage engineers in commending them on a new and comprehensive text for which there is great need. This text will provide a valuable up-to-date reference for the practicing technician as well as a guide for the student. Many engineers spending much of their time in drainage work will, no doubt, do as the reviewer has done and assign the text space in the top drawer of his desk.

—JOHN G. SUTTON



**DEVELOPING FARM WOODLANDS.** By John F. Preston. 386 pp. Illustrated, 1954, New York: McGraw-Hill Book Co., Rural Activities Series. \$4.50

Those familiar with John Preston's "Farm Wood Crops" will find in this volume an even more direct approach to fundamental problems facing 90 percent of the more than 4 million woodland owners. "Developing Farm Woodlands" was prepared to help "students of agriculture." Preston did not consider students as only those located at colleges and universities. He wanted to furnish sound guides to those who would teach and to those who would learn while doing.

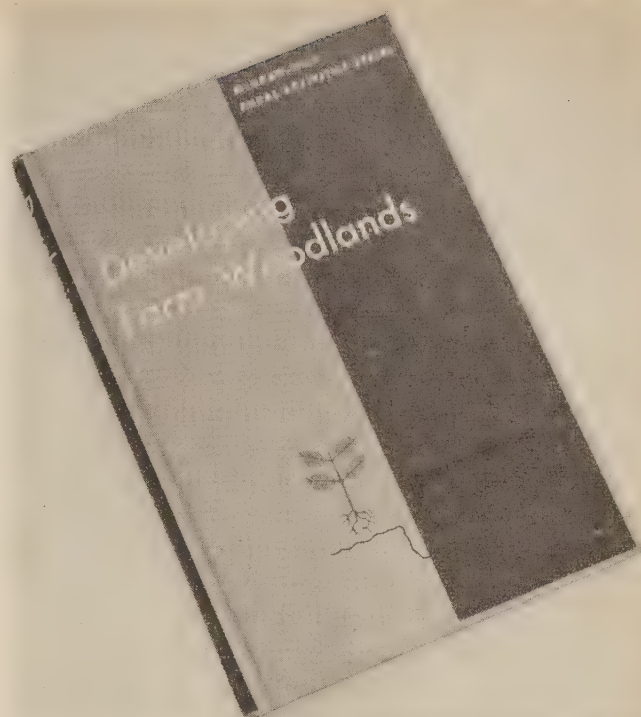
"Growing wood as a farm crop is as much of a farm job as it is a forestry job." Early in his career with the Soil Conservation Service, John Preston established this important basic concept for successful woodland management on farms. He further develops this sound principle of integrated land use in this book.

"Developing Farm Woodlands" should attract "students of agriculture" and all others interested in problems of the use of lands in private ownership. In considering the significant phases of this job, the author treats first things first. In Chapter I, Growing Trees as a Farm Crop, he starts with the landowners, about whom he says "growing wood as a farm crop will not be successful unless the farmer is wholeheartedly in favor of it." Then he discusses the next most important factor, the land—pointing out that the capability of the land for growing a wood crop is the first item to be considered by the landowner.

It is only necessary to look at the subsequent chapter headings, Starting a Farm Forest, Weeding and Releasing Young Trees, Thinning Tree Crops, Pruning Tree Crops, Cutting the Wood Crop, Marketing Wood Products, and the last three chapters—Managing Farm Woods for Maple Sap, Christmas Trees, and Naval Stores—to see that trees are the plants and wood is the primary crop being considered. Also, the forester will recognize the logic of this sequence, and, upon further investigation, the soundness of the advice presented without too much mysticism.

Of course, there will be the few "purists" who will question general rules for thinning, spacing rules, time to start thinning, amount to cut, etc. Yet, these guides if followed will not result in overcutting, degrading the stand, or decreasing the productive capacity of the site. Rather, they will lead the farmer, or the "student" who will later teach the farmer, to develop his woodland into an integral part of his farm business.

In addition to the many illustrations that add both interest and understanding to the discussions, each chapter is concluded with a list of supplementary activities. For example, at the end of the chapter on Cutting the Woodcrop, these activities are discussed: pacing, measuring trees, marking timber for an improvement cutting, and cruising a stand of timber. Each of these is a clearly presented set of instruction for the layman's use. All supplementary activities are jobs that the farmer can learn to do for himself. "His skill in developing his woodland will increase as he continues to cut."



The author is a realist, as are most farmers, especially about growing crops, and therefore he recognizes the hazards to growing wood crops. However, unlike many foresters, he does not dwell at length, and in fearful tones, on those hazards. For example, of fire he says: "Fire protection is one of the musts of growing wood. Investments of time and money in the development of the woodland are not worth while if the productive power of the forest soil is to be reduced by recurring fires." That sounds like a soil conservationist talking to a wheat farmer—the calm, positive and intelligent approach, rather than the emotional, flag waving, hell-fire and brimstone type. After all, farmers are accustomed to considering the costs of protecting their crops against losses from many enemies, and will ordinarily do it if they know the enemy and know that the cost-benefit ratio is favorable to them. One of the wheat states has five times as much wheatland burned over each year as one of the largest timber producing States has burned by forest fires. Yet, the wheat farmers continue to protect against fire, and continue to plant wheat—they know their cost-benefit ratio.

The advantages of the farm woodland owner over the non-farm woodland owner in growing a wood crop appear to be over-emphasized. This volume is primarily devoted to the many opportunities of the farmer to use profitably his woodland to grow a wood crop. There is enough discussion, directly or by inference, of problems of the non-farm woodland owner to raise questions as to the economic feasibility of his growing a wood crop. I would suggest the students' critical appraisal of these disadvantages for the non-farm woodland owner. Modern technologies have altered wood utilization standards to such a great degree that many of these disadvantages have either disappeared or have shifted to



the right side of the ledger—maybe not quite as far over as for the farmer.

The appendices are an excellent complement to the ten chapters of discussion. They contain, among other things, a bibliography, glossary, volume and yield tables, and a very complete summary of forest taxation laws by states. They should be of considerable help to both teachers and students of land use—especially those who are interested in developing farm woodlands.

—T. B. PLAIR

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**IRRIGATION DEVELOPMENT AND PUBLIC WATER POLICY.** Roy E. Hoffman, 336 pp. 1953. New York: Ronald Press Co., \$6.50.

This is an excellent analysis of the social and economic aspects of irrigation agriculture, pointing out the growth and development of irrigation in the United States and how it fits into the public land policy. This book deals with the establishment and status of water rights and their administration, emphasizing the numerous variations and complexities involved, and brings out many modern concepts of water use, including multiple-purpose development by river basins.

This book should aid in arousing interest in water problems by the average citizen, since it brings home forcibly the numerous reasons why *all* citizens—not only the farmers and ranchers of the Western States—are involved in these problems.

Those interested in the orderly growth of irrigation in the humid areas should benefit greatly from this book. It summarizes new developments and sets forth clearly the lessons that can be learned from past experience and points out the hazards involved in irrigation work. It emphasizes the need for more adequate water laws in the Eastern States if irrigation in this area is to reach its maximum potential.

After discussing various numerous and complex factors involved in irrigation, the author sets forth 20 important components that are required for a sound irrigation policy in the United States.

An excellent bibliography on this and related subjects is included.

Professor Huffman was formerly with the Great Plains Water Conservation and Utilization Program of the U. S. Department of Agriculture and now teaches agricultural economics at Montana State College. He is also the author and co-author of numerous articles, research studies, and reports which have appeared in leading irrigation journals. He has kept in close contact with current problems in the field as a member of the Missouri Basin Regional Research Committee, and as a consultant to the Missouri Basin Survey Commission.

—T. H. QUACKENBUSH

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**TEXTBOOK.**—"Nevada Conservation Adventure," a textbook that is written in adventure story form, will soon be distributed to all Nevada schools. The volume is being financed jointly by the State Department of

Public Instruction, the Nevada Fish and Game Commission, and other State agencies.

This is the second such book written by the Nevada Conservation Textbook Committee, and it is designed for use in the seventh and eighth grades. The new text is an outgrowth of a request from the Nevada Federated Sportsmen, an affiliate of the National Wildlife Federation, that conservation education be intensified in the State's schools.

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## JACOBSEN OF CALIFORNIA

(Continued from page 273)

directors. We are paying for and doing the work, to a very large extent, by ourselves, without large federal expenditures. Conservation problems do not stop at your neighbor's fence, and through district operation, overall planning and cooperation is possible and practical. We who have been active and close to this work for several years feel that it is the most effective, democratic approach to the vital problems of soil and water conservation yet devised."

Jake has in mind the fundamental idea of the "stewardship of the land"—the obligation to leave the young people of the community a richer, more productive soil. This, together with the strength and vision of America's youth, he feels, means a stronger and more stable foundation for our nation's future economy.

—ROY E. BALLARD

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**NATIONAL BOY SCOUT AWARDS.**—The United States Departments of Agriculture and Interior will make individual and unit awards to Boy Scouts who participate in the Boy Scout good turn conservation program for 1954 which began officially on March 21.

Twelve Scouts who make outstanding contributions to the program will be selected to receive certificates of national conservation achievement. The certificates will be presented to the Scouts by President Eisenhower when they report to him during Boy Scout Week in 1955. President Eisenhower, a member of the Boy Scout Executive Board, suggested the conservation effort to the scouts.

All units actively participating in the good turn program will receive a certificate signed by the Secretary of the Interior and the Secretary of Agriculture.

The programs carried on by individuals or units may include such projects as building a farm pond, planting trees, seeding highway embankments, cleaning up litter in a public park, planning an exhibit or showing movies to stimulate interest in conservation.























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